

# Audubon Magazine

APRIL 1960

ONE DOLLAR

PUBLISHED BY THE NATIONAL AUDUBON SOCIETY





**LEONARD HALL** has lectured for Audubon Screen Tours for eleven years. In the intervals between tours, he has kept himself busy on his Ozark farm writing a nature column for the St. Louis Post Dispatch. He has had two books published (the latest, "Country Year", Harper's 1957), lectured and taught, made two nature films ("Pursuit of Summer" and "Running River"), and received Missouri's Master Conservationist Award and an honorary degree from Westminster College for "service and conservation". Leonard Hall has photographed bird, plant and other animal life in the Ozarks, Everglades, Coastal Marsh, Chihuahuan Desert, and the West Coast from San Diego to Vancouver.

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# Audubon magazine

Volume 62, Number 2, Formerly BIRD-LORE

PUBLISHED BY THE NATIONAL AUDUBON SOCIETY

*A bimonthly devoted to the conservation of wildlife, plants, soil, and water*

## CONTENTS FOR MARCH-APRIL 1960

Letters	50
Late News from the Fire Ant Front by Harold S. Peters	54
The March Wind and the Red-tailed Hawk by Alfred G. Etter	57
Colorado's Alpine Hay Cutter by Thomas Eberhard	58
Adventures for Bird-watchers in Israel by Walter W. Ferguson	61
The President Reports to You by Carl W. Buchheister	65
Another Year of Robin Losses by George J. Wallace	66
Western Bluebirds in My Garden by Frank F. Gander	70
Portraits of the "Inquisitive Young" by Gordon S. Smith	72
"Yours, Jerry Stillwell" by Mrs. Laird Archer	76
Bird Finding With Sewall Pettingill by Louis A. Stimson	80
Attracting Birds by Helen Hoover	84
Book Notes	88
Your Children by Shirley Miller	94
Cover: Photograph by Verna R. Johnston.	

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## Letters

### Rescue of a Semipalmated Plover

Warm rains on Friday and Saturday during early March several years ago on Long Island, New York, were followed by northerly winds and freezing cold. The temperature dropped to 15°F. during Saturday night.

While walking on late Sunday afternoon on the footpath between Crocheron Park and the Bayside Yacht Club with a companion, Stephen S. Grady, we were attracted by a moving object between the footpath and the waters of Little Neck Bay. On closer inspection we found the movement was caused by the struggles of a semipalmated plover whose right leg and foot were frozen hard and fast in the ice. Its foot was in a roughly circular depression about an inch deep. It was apparent that the bird had sought refuge where the boulders had offered some protection from the elements. In the clear hard ice, the foot and even the toe-nails were plainly visible.

My sympathy was aroused at the plight of the plover. Only an hour or so of daylight remained. The temperature was around 20° and there was no prospect of an early thaw. The only instrument I had was a stout, double-bladed pocket knife. With the small blade I decided to pick or chip away the ice, working from the perimeter of the ice and away from the foot.

The frozen pool had a rock and concrete base, precluding any undermining of soil. Care and patience were necessary as a slip of the knife blade might sever the bird's toe or its leg. I removed my gloves and sat down on my heavy overcoat. To prevent the plover from struggling and endangering its leg, I held it gently in the grasp of my left hand, however during the entire operation the bird did not struggle or show any fear of my movements. After chipping the ice for about a half hour and gradually working under its foot, I raised the plover from the ground, but the foot was still encased in an inverted pyramid of ice about an inch thick at the center. Then I did the only thing I could think of to free it and that was to melt the ice by blowing my breath on it. At first, progress was slow but after some minutes the ice began melting. Within 15 or 20 minutes more I withdrew the plover's foot from the ice.

Only then did I relax my hold, but the plover remained motionless in my hand. In the gloaming, I tossed the bird

gently into the air. It quickly set a northerly course and with strong wing-beats, disappeared.

EUGENE F. HARTLEY  
Pungoteague, Virginia

#### A Protest Against Spraying

I just wanted to thank the many people who wrote to me concerning my letter, "A Protest Against Spraying," published in the July-August 1959 issue of *Audubon Magazine*, p. 153. I know of at least three publications that have reprinted the protest, and I would like to hear of others that readers of *Audubon Magazine* may know about.

ALFRED G. ETTER  
Assistant Professor  
Fisheries & Wildlife  
Michigan State University  
East Lansing, Michigan

#### Seals Along the Oregon Coast

Will you be so kind as to add to the very scarce information we have been able to find concerning sea lions or eared seals? Especially, we wish to know if Oregon sea lions are the same as those listed in the encyclopedia as "California seals" and if they move far from the rocks on which they are seen.

We should like also to learn about the little harbor seals found at the mouths of rivers. Are these ever used for trick acts and as pets, as sea lions are?

MRS. MARGARET ADAIR  
Sherwood, Oregon

#### COMMENT

Seals are divided into two families—the eared seals and the earless, or "true" seals. There are two groups of eared seals—the fur seal (*Callorhinus*) that has ancestral breeding areas in the Pribilof Islands, and the sea lions—Steller or northern sea lion, *Eumetopias*, and the California sea lion, *Zalophus*. The Steller sea lion (an eared seal) ranges from Bering Strait to San Francisco, California. The California sea lion is much smaller than the Steller sea lion and ranges along the Pacific Coast from northern California to southern Mexico. This is the trained seal of circuses and zoos.

One of the earless seals, the harbor seal, *Phoca vitulina*, of the Atlantic and Pacific coasts, is the most numerous of seals and the species most likely to be seen by us. Along the West Coast it ranges from Baja California northward to the Pribilof Islands. On the Atlantic Coast it lives from southern New England (rarely south to North Carolina) north to the Arctic Ocean. It is known as the hair seal in Alaska and western Canada; also the leopard seal because of the spots on its coat. This is the

small, common, so-called "barking seal" of our coastal waters, seen about the mouths of rivers as described by Mrs. Adair in the second paragraph of her letter. We have never known of it to be trained, as the California sea lion may be, to do trick acts.—THE EDITOR

#### The Continuing Appeal of Our Magazine

I have been sending *Audubon Magazine* to my nephew, Dr. David C. Grimwood, since he was a small boy. He is now a successful physician and surgeon at Portland, Oregon but he has always

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kept up his interest in birds and he wouldn't for the world have me discontinue sending him *Audubon Magazine* each Christmas. He gives me credit for having aroused his interest in birds and conservation when he was a very small boy on an Illinois farm.

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### Salt Elimination by Herring Gulls

Mrs. Christopher and I greatly enjoyed Bishop Scarlett's "Old Maw," in the July-August 1959 *Audubon Magazine*. It was warmly and understandingly written. It brought to mind our own experiences with gulls, tapping on the window at our room in the Empress Hotel in Victoria, British Columbia, Canada, and then gulping large pieces of toast, which, for a time, visibly lodged in the neck.

We observed the drooling and smearing at the window, too. This phenomenon was clarified by an abstract, in the *Journal of the American Medical Association* of October 3, 1959 and in an article by K. Schmidt-Nielsen in the *Scientific American* of January 1959.

Mr. Schmidt-Nielsen collected the secretion which dripped from the gull's beak and which originated from paired nasal glands and found it to be "an almost pure five per cent solution of sodium chloride many times saltier than tears and nearly twice as salty as sea water."

These glands apparently enable the gull to eliminate salt and thus drink sea water without ill effects. Schmidt-Nielsen found that the glands could handle relatively enormous quantities of salt. In one instance a gull was unaffected by an amount of sea water equivalent to two gallons for a man. "Its salt glands had produced only about two-thirds as much fluid as its kidneys, but had excreted more than 90 per cent of the salt." **FREDERICK CHRISTOPHER, M.D.**

Winnetka, Illinois

### Use of Birdbaths in Winter

Let me first say how much our family enjoys *Audubon Magazine*—as well as the Audubon Screen Tour lectures that we are fortunate enough to have presented here in Rockford during the winter.

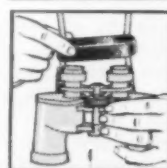
I was particularly interested in the comments on birdbaths in the winter. Last winter my husband moved our birdbath up close to the house, next to the feeder. He installed a small thermal unit which is controlled by a switch in the kitchen. Our winter was unusually severe, the temperature was as low as 17 below zero—and at all times there was open water in our birdbath.

I had never before realized how much the birds do need and enjoy water.

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R.D. 21, Brevard, North Carolina

It was amusing to watch them bathing on the coldest days.

Today we are having our first heavy snow this year, and feeder and bird-bath are equally popular. Some friends jokingly called our backyard "the birds' country club."

We had not realized the water-heaters were available commercially, but it is a small investment when you realize how much enjoyment not only the birds but you yourself get from it.

MRS. BRUNO RAMTHUN  
Rockford, Illinois

#### Praise for Audubon Screen Tours

Dr. Alfred G. Etter's Audubon Screen Tour is a *real* experience! I wish every man in America could hear what we heard last night, January 6, 1960! I think the Audubon Screen Tours are going to be highly successful here this season, as a result of the work of Mr. Yancey Altscheler. Each Screen Tour somehow seems to be even better than the one before.

W. G. DUNCAN  
Louisville, Kentucky

#### Providing a Nesting Place for Doves

In the summer of 1957 a pair of mourning doves nested in an elm tree in our front yard. Following a wind and rain storm, I found the nest with one egg lying on the ground. Knowing the doves' inability to build a secure nest, I decided to help them by providing an adequate foundation. I placed a wicker roll basket in a low crotch of the same tree, wiring it securely to prevent its being blown out. The doves did not return to the tree in 1957, but one morning in April 1958 I noticed a pair of doves carrying nesting material into the same tree. Upon investigating, to my delight, I found that the basket was being used. They were placing a few small twigs in it. Later the basket was housing the doves' small brood, secure from wind and driving rain.

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# Late News from the Fire Ant Front

By Harold S. Peters

(Editor's Note: For a previous summary of the fire ant control program, and its destructive effects on hundreds of thousands of acres in nine southeastern states, see "The Greatest Killing Program of All?" Audubon Magazine, November-December 1958 issue.)

FIFTEEN months have passed since our Society's report, "Hazards of Broadcasting Toxic Pesticides," summarized the dangers from unwise scattering of strong chemicals for pest control. It documented how the "eradication" program for the imported fire ant in the southeastern United States was ill-conceived, unnecessary, poorly handled, and extremely destructive to wildlife. Nothing that we have learned since its preparation has caused us to modify these statements. Unfortunately, the fire ant control program still is being conducted, and approximately one and three-quarter million acres (1,750,000) now have been deluged with heptachlor, or dieldrin, by federal and state control agencies. No one can foresee what total harm may result from this widespread use of strong chlorinated hydrocarbon insecticides. We know now of the seriousness of the immediate results but the chemical residue will remain in the soil for three to six, or more, years. What will happen to the micro-organisms in the soil during

This article is a condensation of a talk presented by Mr. Peters before the 55th Annual Convention of the National Audubon Society, November 10, 1959. Mr. Peters is a research biologist for the National Audubon Society. He has worked for the Society especially on investigations of the fire ant control program in the Southeast. —The Editor

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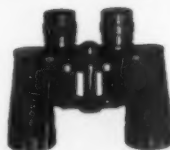
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this long period? What will happen to the insect larvae, the earthworms, the reptiles, amphibians, rodents, and other animals which are associated with the soil and are part of the important food-chains essential to the ecology of the Southeast?

It is possible that irreparable harm may result to the economy of the affected states, from Florida and Georgia westward to eastern Texas where the fire ant program has been centered. When a toxic chemical such as heptachlor is broadcast over hundreds of thousands of acres a very serious mortality factor is added to the many other adverse factors facing most wild and domestic forms of animal life. Some animal species may not be able to persist under this added burden, and others may be reduced drastically in numbers. When part of the vital food-chain is broken or weakened, a whole complex of related and dependent forms must suffer. This probability disturbs all thinking conservationists and it is this which impels us to demand that the unwise broadcasting of toxic chemicals for control of the imported fire ant (or for control of any other pests) be stopped. We favor local treatments to known, or visible, infestations of pests rather than wide scattering of broad spectrum chemicals.

In addition to the great loss of animal life, there is the tremendous cost of such programs. The last Congress appropriated another \$2,400,000 for continuation of the fire ant project. Since this was the third consecutive year of similar appropriations, \$7,200,000 have now been earmarked for this southeastern program. With additional funds allotted by state legislatures a total of \$10,000,000 to \$12,000,000 has been set aside for "eradication" of the fire ant which is considered by most of us to be a nuisance and not a pest.

On the other hand, there are signs that state legislatures are becoming reluctant to continue matching appropriations for fire ant programs. In Alabama, the House Ways and Means Committee tabled the bill for

funds to continue their support of the program; Florida reduced theirs from the requested \$600,000 to \$300,000; while Texas never has put up any state funds. Originally the fire ant program was planned as a three-way effort, to be financed one-third by

*Turn to next page*

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the property owner, one-third by the state, and one-third by the federal agency. But in several states the property owner is not asked to pay anything—the taxpayers everything!

The public now has been alerted to the damage done to wildlife, livestock, and other organisms through reports and published results of studies by biologists, graduate students, and others. As a consequence many farmers and cattlemen are loath to sign lands for treatment, and some communities are actually protesting the program in their areas. They should continue to do so, and particularly in the light of a new regulation by the Food and Drug Administration which reduces the allowable tolerance for spray residue of heptachlor and heptachlor epoxide from 0.1 part per million to ZERO for 34 fruits, vegetables, and forage crops. Included in this list are alfalfa, clover, and grass.

How then can federal and state control agencies continue the risk of broadcasting heptachlor over pasture and crop lands, and upon any areas? For granules containing heptachlor do lodge upon alfalfa, clover, and grass where they may be eaten by grazing animals. The chemical may appear in their fat and milk. Also, the residue can not be washed off fruits and vegetables—so these should not be subjected to applications of heptachlor. The U. S. Department of Agriculture must have known these dangers when it prepared a sheet of precautions and directions to persons whose properties are to be treated. Among the precautions, are:

"Leafy vegetables in your garden, such as lettuce, cabbage, turnips, etc., should be covered prior to application of insecticides and then washed before eating."

But who could protect with a covering an entire field of vegetables or of other crops? And who protects wildlife from the poison upon their food?

Originally the fire ant program consisted of broadcasting heptachlor in granules at the rate of 20 pounds of 10 per cent strength, per acre. In mid-1959 the USDA quietly changed a directive to recommend the amount be reduced to 1¼ pounds per acre, but this was not followed in all areas. And in De-

*Continued on page 69*

AUDUBON MAGAZINE

# The March Wind

## AND THE

### RED-TAILED HAWK

*Photograph of red-tailed hawk by John H. Gerard.*



By Alfred G. Etter\*

THIS is a day of fear for rabbits, because the March winds and the red-tailed hawk have met on a hill and gone hunting. There is no combination more beautiful to watch or more deadly for the earthbound animal. The subtle amalgamation of the elements of earth and the phenomenon of life has an impressive illustration in this partnership. The miracle is that once these winds blew lonesomely over land devoid of life. Now exists a being—a red-tailed hawk—that knows so much about the winds that he conquers them, exploits them, depends upon them for the artifices that support him.

This small speck of life has the determination to fly, and not be blown except when in his sudden rise from valleys it suits him to ride a gale to its crest, then, folding his wings to glide down the unseen swale beyond. He is not carried to the far off places where the wind will be tomorrow, the swamps and splashing gulf, but clings to these few hundred acres that he has explored and mapped and filed upon. Here the hawk has won from both winds and earth assurances of com-

panionship throughout his days.

This speck of life is free as the wind, yet, by his decision a part of this farm. However hard the gusts may blow, here he settles to the earth. He has his tree, a tree that I say belongs to me. And yet I note he doesn't ask me for it, but takes it, for he does not question but that it is his. Stout though the tree may be, it shivers when the heavy bird comes to it to rest.

It is a tradition of the red-tailed hawk that rivers, oceans, and marshes are the proper place for different kinds than he; these hills, these bluffs, these streams are his, an inheritance from hawks that, without missing a single second, have seen time unwind 50 million years. This watchful lonesome conquest has been made by single hawks that needed the keenest kind of craftsmanship to outwit the cautious, grass-protected game. In the face of icy winds they had the confidence to parlay one cleaned cottontail upon the next. If, beneath a load of ice, the old nest tree crashed in winter, the decision had to be made about another. The decision was not by one, but by both hawks, for both hunt and watch the eggs and feed the young. Both will strike ferociously at danger that comes to these creations of theirs.

Eggs are so neat that they make life seem too easy, but what mysteries are hidden in that egg! An untried

hawk! Sacred egg, archive of experience, of conflict, of success, record of all that hawks have done, that earth has done, that wind has done. A hawk is time itself, bound in miraculous fashionings; warm time, sealed in feathers, legs of tooled iron, scythe of a beak, and deep imperious eye.

How do they use the wind? They know the earth beneath it. They watch not just for mice but anticipating currents from each roll of ground, sweep and tower and plummet to the void, and with heavy flying rise again, surprising mice that had scanned the sky only a second before, with assurance it was empty. The injured bird, or the careless and the lazy (for there are such among birds and other animals) are surprised by these deft fencings of the experienced one. For hawks are old compared to the young life beneath them. It is the old hawk that keeps the rabbits and the mice and birds young. Without them there would be a tottering senility, ill-equipped to last the winter, or to hide the nest. Cruel thought it is that life must have its predator, for marvel at the hawk all one will, he is the means of death. It is strange, too, that without death there could be no life, yet so it is. Expect the hawk to scan the earth, but hold no grudge against him, for he is the harvester of life.

— THE END

\* Mr. Etter is Assistant Professor, Fisheries and Wildlife, Michigan State University, East Lansing, Michigan. He is also a lecturer for Audubon Screen Tours. Many of our readers will remember his movingly written editorial, "A Protest Against Spraying," published in the July-August 1959 issue of *Audubon Magazine*.—The Editor



Pikas have special prominent rocks on which they like to sit and utter their calls.

## COLORADO'S ALPINE HAY CUTTER

*All photographs by the author, unless otherwise noted.*

The author examines a pika's harvested pile of hay.



A forest ranger finds the pika, or cony, to be one of the most appealing mammals of the West.

By Thomas Eberhard\*

IN all its beauty, the alpine country of Colorado has an overpowering force about it. Every element is severe, potent, and frightening. The wind rarely ceases, and the earth's gravity, exaggerated by the steepness of the slopes, never ends its pull on the rock cliffs, slides, and soil. Persistent, too, is frost, which is present during much of the short growing season. The long bleak winters are masters of this zone, keeping most life dormant for the greater part of the year.

Yet, in the face of all these odds, a small and delicate but robust mammal thrives, making its home in the loose rocks of the mountain

\*The author, raised in Pennsylvania farm country, began a forestry career at Pennsylvania State University in 1942. After the war he did graduate work there in wildlife management. He is at present a forest ranger at Gunnison National Forest, Gunnison, Colorado.—The Editor

### THE PIKA

One of the common names of the pika, or cony, is "rock rabbit," a well-chosen name because the pika is related to rabbits and hares (Order Lagomorpha) but is classified in a family by itself—the Ochotonidae. In the United States, pikas especially *Ochotona princeps*, the subject of this article, live in the high mountains of the western United States, up to an altitude of 13,600 feet (on Wheeler Peak in northern New Mexico). Pikas live in mountainous regions of the West from northern New Mexico and Kern River, California, north and west to Mount McKinley, Alaska. A few subspecies, or geographic varieties, live on the plains of northeastern California, eastern Oregon, and southwestern Idaho.

Pikas that resemble our species also live in the mountains across Asia and southward to the Himalayas, and in the Ural Mountains bordering Europe.—THE EDITOR

sides. And though it is virtually unknown to the majority of people, it likes to give its call of curiosity to those few humans who do visit its habitat. This round, furry, rabbit-like inhabitant of the rocks is the pika, also commonly known as the cony.

Perhaps the most intriguing thing about the pika is its habitat—the formidable, barren-looking rock-slides. I've often marvelled at how such a vulnerable appearing mammal could live so successfully under



Weasels often prey on pikas. Photograph of a short-tailed weasel by John H. Gerard.

grayer in color. Later in the season they acquire a more tawny shade. Like the young of other mammals, young pikas are not as shy, as confident, nor as agile as the adults. On Fairview Peak in July, I observed young pikas together that were about four inches long and almost uniformly gray in color.

Conies live in loose colonies and each individual appears to have a small area that is its very own. From my own observations the pika's home range is very small, about one-tenth of an acre, and is centered around its "haystack." In this area the pika has special rocks on which it sits, watches, and gives its call. During the course of a day, it will make its rounds about every hour, hopping up on these perches here and there, and then moving out of the area on a longer journey. These trips out of the pika's immediate home area occur quite regularly, even when it is not harvesting. During the winter, its activity is much less, because of the deep snow.

Although pikas live mainly in rockslides, they sometimes take up residence in old slab piles. In Comanche Gulch, I found several pikas living in a heap of decaying slabs. These conies had favorite perches among the slabs much the same as those inhabiting the rocks.

Voice of the pika is usually a one note call, although some conies give a call that has two notes close together. Sometimes the sound is a chatter that finally breaks into the single note. The typical call sounds somewhat like a nasal *eehh*, with a plaintive quality about it. In giving its call, a pika thrusts its head forward, and twitches its ears at the same time. Because pikas are hard to see, the best way to locate them is by their calls. At the approach of an intruder, almost every pika in the slide will burst out with calls of curiosity and warning.

The most admirable habit of the pika is its preparation for winter. In late summer it gathers a variety of green plants from the edges of

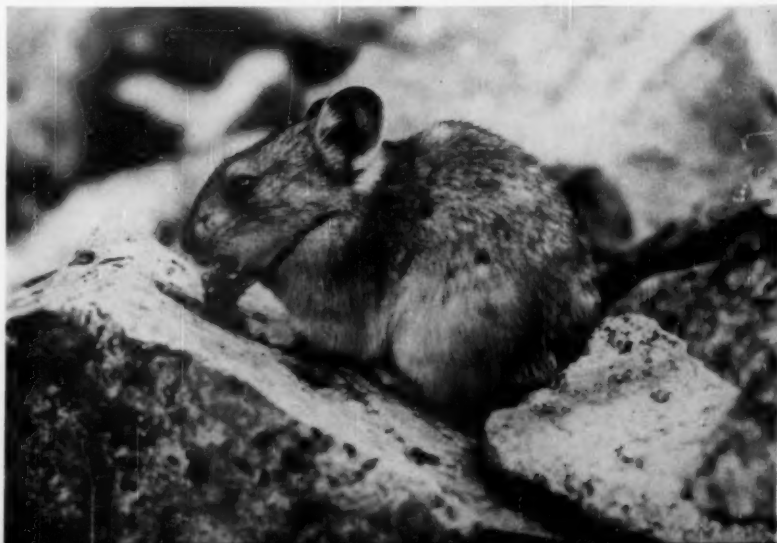
Pikas sometimes live in old, decayed piles of "slab" wood.

such rigorous conditions. Its fragile appearance belies its hardy character.

American Indians called the pika "little chief," giving rise to one of its present-day names, little chief hare. It is also called rock rabbit, whistling hare, and tail-less rabbit. Although closely related to hares and rabbits, pikas more nearly resemble a small gray guinea pig. They have shorter ears than rabbits, shorter hind legs, and no visible tail. They are about eight inches long, buffy gray in color, and have very soft fur and ears. The whiskers are long and prominent. In between the small, black toe pads, there are numerous, stiff, white hairs that help to give sure-footed traction on the rocks. In general appearance, the cony looks somewhat like a small chinchilla.

The young, which are usually born in early summer, are generally

A pika nibbles on freshly-cut cinquefoil plant.



the slide, cures them in the sun, and stores them under rocks within the slide. This is its "haypile." In some alpine areas, where vegetation is scant and dwarfed, it will cache almost any kind of green plant, i.e., lichens, mosses, willows, grasses, sedges, and forbs. At more lush locations, it is more particular, harvesting only the plants that it especially likes. Usually the haypile of the new season is heaped upon the remains of the stack of the previous year.

The pika's method of gathering plants is amusing to watch. Where plants are small, it will get a good bite on the stem, just above the ground, and pull backward, tugging like a pup on a rag. When the stem or root gives way, it will scurry away with the morsel in its mouth. Where plants are larger, it cuts them with its teeth, and if the pieces are too long to carry, it drags them to its stack.

At Silverton, during the harvest season, I baited a favorite pika perch with slices of apple. The pika nibbled the first slice and at once took it to its cache. It continued to carry away every slice of apple I placed on the rock, but never again ate any above ground. Later, in November, it showed no interest in apples. There was snow on the slide at this time, and the pika was considerably less active than at harvest time.

The pika's preference for plants depends on the locality and its particular vegetation. On Cannibal Mesa, in the alpine meadows, pikas gathered mainly clover, sedges, kobresia, and rushes. On Cumberland Pass, where plants were dwarfed and sparse, the haypiles contained a wide assortment of plants, from lichens and mosses to thistles and willows. Just below timberline, in Comanche Gulch, pikas preferred bluebell, gentian, cinquefoil, elder, and various grasses and sedges.

During harvest time, pikas are very active, making many trips outside the slide. This is the time when a pika may be caught by hand, for it can be cornered on solid ground, behind a stump or rock. Trying to catch one among the loose rocks of the slide, however, would be very foolish, for the pika has infinite crevices among the rocks into which it can dive at the slightest hint of danger.

Close associates of the pika are various mice, ptarmigans, marmots, weasels, martens, and least chipmunks. In addition to the ptarmigan, a variety of songbirds frequent the slide and its edges. Eagles and some of the hawks prey on the pika, but their take is light. The main four-footed enemies of the pika are weasels and martens.

Although shy, the pika is curious. I have noisily walked up to a spot where a pika just disappeared and stood motionless. After five minutes of waiting, it would usually pop up, very cautiously, to get a look at the intruder. On trying to approach a visible pika, I used a soft, squeaky whistle while walking slowly toward it. Its head would turn this way and that, which made it appear to be occupied with the noise. It disappeared, quick as a wink, when I approached too closely.

Photographing these small mammals required considerable patience and many days of watching and waiting. My first try was on a group of very shy pikas near Silverton. Even though the camera was hidden under a gray-green cloth, three feet away, the first pika would not sit. It hopped up on its special rock and went down without stopping. It repeated this spooky behavior at several of its other perches when the camera was in front of it. I tried another pika close by, but fared no better.

The next day I found a pika not as timid, and had some success in tripping the shutter, although the resulting pictures were of a moving pika, not a sitting one. I had used an air shutter release about 50 feet

long, and it made noises prior to the opening of the shutter. These preliminary clicks scared the pika and when the shutter opened, the pika was moving, too fast even, to be stopped by a camera speed of  $\frac{1}{200}$  of a second. Only after I overhauled the release did I get good, unblurred shots.

On Cumberland Pass, pikas were not as shy. Here I used a 350 millimeter (14-inch) telephoto lens, with the camera 12 feet away and tripped with a string. This device was much more satisfactory, and after finding a bold pika, pictures were easier. I had no need to use apples here, for at the time of picture-taking, the pika was busy with its haying. It would pop up frequently to rearrange some of the material on top of the rocks or come in with a mouthful of freshly cut plants. Like the Silverton pika, it was considerably less active by late October.

By placing the camera on a convenient rock instead of using a tripod, I was able to hide the device more easily with a gray-green cloth. The pikas were curious about this new object, and hopped all over it, pulling off the cloth, and sniffing and biting the bellows. The pika at Silverton especially liked the rubber tube of the air shutter release, biting it, and trying to carry it away. It gave up attempting to steal the tube when it found it was too long and stretchy.

At the old slab pile in Comanche Gulch, I had set up for a picture at a favorite perch. During an hour of waiting, I saw or heard no pikas anywhere. At length, I walked around the pile and caught a glimpse of a weasel. In and out it went, all about the pile, and finally disappeared into the bordering trees. Shortly thereafter, the pikas reappeared and gave their calls. This was in contrast to a similar situation in a rock slide, where an intruding weasel caused no apparent concern, except for frequent calling from the pikas. They simply watched and squeaked, but did not disappear below the rocks.

As more people visit the mountains, more will get to know the pika. In addition to the many other fascinating features of the high country, they will find the pika very warm, interesting, and the "cutest mammal of the mountains."

— THE END

#### SANCTUARY?

*"The most uncertain factor in wildlife conservation is not rational management, but public support for a suitable and effective program that may be neither a spectacular performance nor a crusade."*

— IRA N. GABRIELSON

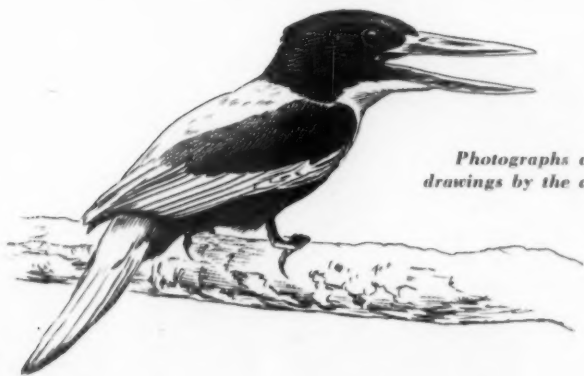
As a commentary on our Society's annual Sanctuary Fund appeal — now in progress — Dr. Gabrielson's words sum up the problems of soundly managing our existing sanctuaries and providing for the orderly expansion of this important part of the National Audubon Society's diversified conservation program.

# Adventures for Bird-Watchers in ISRAEL

A report about the bird-  
life of an ancient land  
by a well-known artist  
and illustrator.

By Walter W. Ferguson

THE State of Israel lies on the northwestern side of the Arabian Peninsula and faces the southeastern corner of the Mediterranean Sea. About the size of New Jersey, the country is remarkable for its variety of geographical features, unequaled for such a small area. These range



*Photographs and  
drawings by the author.*

#### About the Author

In 1958, Walter W. Ferguson spent six months in Israel with his wife Grace, a botanist. They traveled the length and breadth of the country, more than 5,000 miles by motor scooter, studying, collecting, photographing and sketching the wildlife of Israel in preparation for a book.

— THE EDITOR

Smyrna kingfisher (above). View of Arab village (below) near Jerusalem.



from the mountains of the Galil, thousands of feet high, to the Dead Sea, more than 1,000 feet below sea level and the lowest place on the face of the earth. Between these is the tropical Jordan Valley. To the south more than half of the country is a desert called the Negev which opens on an arm of the Red Sea. The fertile coastal plain sweeps up along the shore of the Mediterranean. Located at the crossroads of three continents — Europe, Asia, and Africa — Israel is inhabited and crossed annually by birds of five zoogeographical regions, the Mediterranean, Saharo-Sindian, Irano-Turanian, Euro-Siberian, and the Sudano-Deccanian. These add up to a rich and varied birdlife of more than 400 species.

During the past 2,000 years civilization has destroyed much of the wildlife of the country and it is only during the past 30 years or more that the ostrich has become extirpated. The biggest single factor in losses of wildlife was the destruction of the forest under the Ottoman Empire, which left the land bare and badly eroded. The only birds to benefit from the phytogeographical changes were those swamp species whose habitat increased as a result of the lack of trees which allowed coastal sand dunes to block river outlets, thus forming extensive marshes.

Since about 1900, land reclamation and reforestation of Israel has reversed the situation. Millions of trees, planted and managed by the Jewish National Fund and the government of Israel, have recreated suitable habitats for many forest-dwelling birds. Among these are the Syrian jay and Syrian woodpecker which have increased in numbers. It is hoped that the jackdaw, which formerly nested in the oak woods near Jerusalem, will return to nest there again.

At the same time extensive resettling of the land has encouraged the increase of those birds which can adapt themselves to gardens, farmland, and houses. The long dry season makes available countless

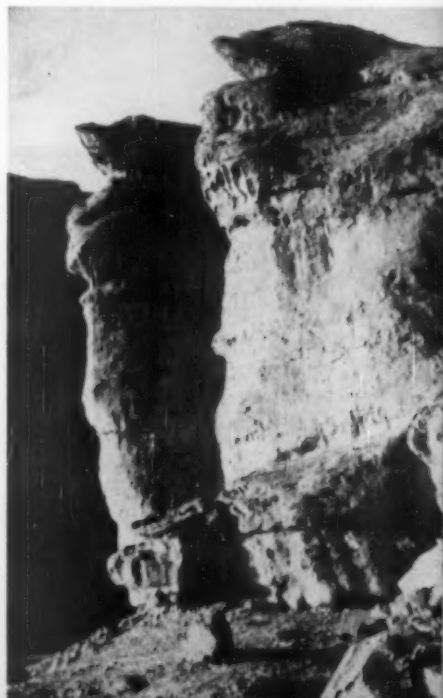


White cliffs of Rosh Hanigra and Palestine sunbirds at right.



Date palms in the Jordan Valley.

Hoopoe (below) and view of King Solomon's copper mines in Negev, Israel (at right).



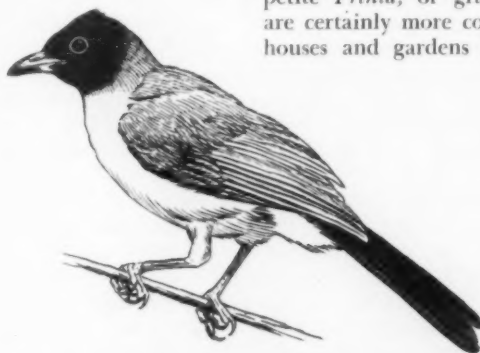


View of Lake Hula, Israel.

drain-pipes which are promptly stuffed with the nests of house sparrows. Spaces under tile roofs are made to order for the lesser kestrel and hoopoe which usually nest in rocky crevices or holes in tree trunks. The Asiatic swift adapted itself completely to the city as if it were its birthright. The white or barn owl and swallows are known for their preference for old farm buildings. Although the tiny scops owl still

nests in trees, the trees may be in the heart of town.

Since their appearance a little more than a decade ago, the cattle egrets have built their rookeries in backyards, and the fearless great tit is at home in a mailbox or a hollow fence post. Rock doves, although they still build their nests in the mountains, have taken to buildings in great numbers in recent years. The gentle turtle dove, of which three species nest in Israel, and the petite *Prinia*, or graceful warbler, are certainly more common around houses and gardens than they are



Yellow-vented bulbul (above). View of the Arava (below), with an acacia in the foreground and mountains of the Transjordan in the distance.



in the wilds. The intelligent bulbul, owing to its fondness for fruit, now lives throughout Israel. Formerly restricted to the Jordan Valley, the Smyrna kingfisher, which rarely eats fish but feeds on lizards, has widened its range to the coastal plain and into the mountains. The diminutive Palestine sunbird has likewise followed the planting of Bignonia and other flowers from which it may feed, and has been found breeding on the coastal plain.

In recent years the numerous settlements that have sprung up in the desert are, in effect, man-made oases. The planting of palm groves, pomegranates, and fig trees provides shelter from the burning mid-day sun. The cultivated fields have far more birds per square acre than the arid desert; and leaking irrigation pipes are nightly gathering places for sandgrouse. Some bird species which formerly passed through the desert during migration now pause to rest and even stay to breed.

The total lack of life in the Dead Sea makes it unattractive to birds, except at the embouchure of the Jordan River and other streams where fish and crustaceans carried into the sea immediately die, and are washed ashore to be fed upon by kites and Egyptian vultures. At Ein Geddi, only a stone's-throw away from the shore of the Dead Sea, a series of springs and waterfalls supports a lush plant community. Here can be found such strictly Arabian species as the Dead Sea sparrow, Tristram's grackle, spiny babbler, black-tailed chat, sand partridge, and fan-tailed raven.

With the draining of Lake Hula the last of the great swamps in Israel are gone. Malaria has virtually been wiped out and badly needed arable land made available, but a wildlife sanctuary of 1,000 acres has been set aside to preserve the unique plant and animal life. Here an impenetrable jungle of papyrus remains undisturbed, isolated by a canal that surrounds it, and joins an open stretch of water where white water lilies and yellow spatterdock still flourish. Even though the numbers of birds have been reduced, the Hula preserve is still a paradise for birds. Some species do not breed anywhere else in the country, such as the marbled duck and black-headed wagtail. The blue-cheeked bee-

eater has extended its range from the Jordan Valley to the valley of the Hula. Among the most conspicuous birds to be seen there all year round are the flamingos, spoonbills, and pelicans. With the coming of the winter rains, ducks of a dozen species, shorebirds of every kind, and a host of herons descend upon the preserve. When they are flushed, the whole valley seems to be pulsating with birds.

In many places where the swamps were drained, it was found that the soil was too saline for agriculture and so ponds were dug and fish farming was introduced. Around the margins of these ponds, reeds and cattails sprang up and now provide a suitable habitat for moorhens, little grebes, and purple herons to breed. Shorebirds are particularly attracted to the ponds when they are being drained and the abundance of small fishes makes easy fishing for common, little, black, and white-winged black terns, and the pied kingfisher.

Until the late 19th century, the accumulation of birdlore of the Holy Land was limited to the writings of the Old Testament. At that time the need for explanations that would be understood and heeded by the Israelites made it necessary to use similes and metaphors comparing the lives of men to familiar animals. For example, in reference to timeliness Jeremiah wrote, "The stork in the heaven knoweth her appointed time and the turtle and the crane and the swallow observe the time of their coming."

Since then the birdlife has been studied mostly by visiting naturalists such as H. B. Tristram who prepared the first comprehensive list in 1884 or by soldiers stationed in or near Palestine, for example Colonel R. Meinertzhagen whose monograph, "*Nicoll's Birds of Egypt*," in 1930 covered most of the species found in Israel today. Under the direction of Dr. V. H. Mendelsohn members of the staff of the Tel Aviv University are actively studying the life histories of the breeding birds of Israel and have brought the list up to date.

The first law for the protection of birds in the history of the world is attributed to Moses in Deuteronomy, Chapter 22 where it is written —

"If a bird's nest chance to be

before you in the way, in any tree, or on the ground, with the young ones or eggs, and the dam sitting upon the eggs or upon the young, thou shalt not take the dam with the young; thou shalt in any wise let the dam go, but the young thou mayest take unto thyself."

Israel now has modern laws protecting its birds so that even the young or eggs may not be disturbed. That is only the beginning in the battle of educating people whose lack of consideration for animals stems partly from a traditional fear throughout the Middle East, that of contracting rabies, and a standard of living that has never risen to the point of appreciating animals other than for food and as beasts of burden. Many people are still unaware that these conservation laws exist but with the newly established government office and Society for the Protection of Nature, trained rangers will be able to publicize and enforce them. In addition there are branches of the Society for the Protection of Animals in Haifa, Tel Aviv, and Jerusalem, which provide animal shelters. Most important of all, the principles of conservation are being taught in the schools to the new generation.

Seeing birds in Israel does not involve the time, danger, and expense that it did only a few decades ago when many parts of Palestine were ruled by Sheiks who had to be bribed by visitors for permission to cross their territory as insurance against being robbed. Even then there was danger of attack by marauding bandits. Today the modern traveler in search of birds, need not hire horses, camels, servants, interpreters, and guides nor take supplies of food and firearms. After arriving in the modern port of Haifa or at Lydda Airport, there are taxis and buses leaving for every principal part of the country where modern hotels or hostels can be found.

The climate in Israel varies within the country, but in general is similar to Florida or California with a rainy season which lasts from November to March. During the rest of the year the sun shines brightly and one may plan on going "birding" there up to six months in advance and rest assured that the weather will be fair. — THE END



# THE PRESIDENT REPORTS TO YOU

By Carl W. Buchheister, President of the National Audubon Society

## Our Work on the Pesticide Problem

The pesticide problem is so vast and complex that we could most advantageously maintain a field staff of several trained biologists to help us keep up with developments. We have, however, been able to keep only one specialist in the field through 1958 and 1959. It is pleasant to report to you that a very timely and generous gift has assured the continuance of this program through 1960, and Mr. Harold S. Peters, of Atlanta, Georgia, will continue to be our research biologist assigned to pesticide problems. In addition to field work in the Southeast, where he continues to gather evidence of damage to wildlife caused by the U. S. Department of Agriculture's fire ant "eradication" program, Mr. Peters has spoken to many public groups and his written reports have had wide circulation. (See page 54 of this issue.)

In November 1959, at the request of the Detroit Audubon Society, we sent Mr. Peters to Michigan to investigate heavy bird mortality resulting from the use of aldrin in an ill-conceived attack on the Japanese beetle. Aldrin, which is about a hundred times more toxic to wildlife than DDT, and thus considerably more toxic than dieldrin or heptachlor, was broadcast aurally over some 25,500 acres. Although the northeastern states have helped to control Japanese beetles by introducing milky spore disease (parasitic wasps, flies, and nematodes help, too—Ed.), aldrin was reportedly chosen by local control officials in Michigan because it was cheaper! On the basis of this information, the Detroit Audubon Society protested the use of aldrin in a resolution which has been widely circulated.

New evidence gathered in a research project at the University of Wisconsin by Dr. J. J. Hickey and his students, shows that even the most conservative use of DDT (following recommended precautions of industry and the federal government) in spraying for Dutch elm disease control is causing losses of robins (the one species studied statistically) of from 68 to 99 per cent in those communities which have done the spraying. This work confirms the research of Dr. George J. Wallace of Michigan State College as reported in *Audubon Magazine*, January-February 1959 issue, and on page 66 of this issue. The work of these two scientists leaves no doubt about the injurious effects of DDT on wildlife. Earlier reports of "no observable damage," often made by various officials, were the result of inadequate field studies, but the conclusion of total damage to robins and other wildlife must be tempered by a realization that the treatment of elm trees may vary widely from region to region—and that bird mortality will vary greatly if the spray programs affect only limited proportions of a community's total area.

At the invitation of the National Research Council

we sent Mr. Peters to a conference on pesticides and wildlife relationships in Washington, D.C., in January, and we hurried him from there to Princeton, New Jersey, where he had been attending a symposium on mosquito control as related to encephalitis outbreaks. We are glad to report that the National Research Council considered the problem so important that they are forming a standing committee to make continuing investigations.

## Our Newest Wildlife Sanctuary

We are sure few things give the directors, and the officers and members of your Society more satisfaction than the addition of another sanctuary to our increasingly important chain of them. Our newest one is the Richardson Bay Wildlife Sanctuary which lies immediately north of San Francisco, and just northeast of the Golden Gate in that arm of the bay that lies between Belvedere and Strawberry Hill, with the Tiburon hills in a background. From the shore of the bay looking south there is a magnificent view of San Francisco.

It was through the combined efforts of the Richardson Bay Foundation, the Marin Conservation League, the Marin Audubon Society, the County of Marin, and the City of Belvedere, and the assistance of many other generous contributors, that we were able to acquire control of some 600 acres of submerged lands from private developers. The National Audubon Society has leased the area for 50 years and will maintain it as a wildlife sanctuary with warden patrol during that part of each year that waterbirds are plentiful in the area. There is an old saying thereabouts that at the time of the herring run, one can walk across that part of Richardson Bay on the backs of the ducks. The wintering species include scoters and mergansers, but especially pintail, canvasback, ruddy, and bufflehead ducks, and herons, egrets, pelicans, cormorants, gulls, terns, and grebes.

Warden John Larson who, from mid-March to mid-September, guards the Society's famous reddish egret sanctuary at Green Island, Texas, will be at the Richardson Bay Wildlife Sanctuary from October first to mid-March, as he was this last season of 1959.

## Newsletter to Replace "The Flying Egret"

To perform the vital role of liaison between the National Audubon Society and its 313 branches and affiliated societies, we have begun a newsletter called *Audubon News and Views*. This small, offset publication will be sent to the principal officers of all our groups and will, in time, serve as a manual of operations as well as providing periodic reports on conservation matters of common interest. It replaces the mimeographed *Flying Egret*.

Continued on page 69

# ANOTHER YEAR OF ROBIN LOSSES ON A UNIVERSITY CAMPUS\*

The appalling losses of robins and other native birds continue because of DDT spraying to destroy elm bark beetles.

By George J. Wallace

Editor's Note: This is a followup to Dr. Wallace's previous article, "Insecticides and Birds," published in our January-February 1959 issue.

**I**N the January-February 1959 issue of *Audubon Magazine* I described the decline of robins over a four-year period on the 185-acre "North Campus" area at Michigan State

\*Contribution from the Department of Zoology, Michigan State University, East Lansing.

University in East Lansing. Briefly, an estimated population of one pair per acre (185 pairs) in 1954 dwindled to few or no resident birds by the summer of 1958. Surveys over the North Campus yielded no robins on June 22, 1958; 3 on July 17; and none on August 7. Perhaps the two late-summer surveys are of little import, as visiting robins may be present one day and absent the next, but the apparent absence of both adults and young on June 22, 1958 seemed really significant.

A virtually robinless campus in the late spring of 1958 posed the interesting question of what the situation would be in 1959. We now have the answer. During April, May, and June of 1959 we took 30 censuses or counts of robins on the North Campus. Other counts were taken before and after these dates, but the April-June figures are the pertinent ones here.

In early April 1959, we observed a considerable influx of new robins. My count on April 8 was 21, but

"One female lived long enough to fledge one or two young." Photograph by G. Ronald Austing.





The author, George J. Wallace (at left), and Richard Bernard, research assistant, examine 43 dead robins picked up on the campus. Photograph by Alfred G. Etter.

Spraying DDT on elms in early spring to destroy elm bark beetles. Photograph by Roche.



the birds were somewhat unsettled at that time, not in pairs; perhaps some were moving on to new areas and new birds still arriving. On the following day (April 9) Gerald Kettunen, an ornithology student, saw 20 robins. On April 14 he counted 22, the maximum number found on any of the 30 censuses taken from April through June, 1959. On April 26 Mrs. Wallace and I saw seven pairs, male and female definitely associated, apparently on territories, and four single birds whose mates went undetected, or more probably had recently died, as we had seven dead robins by that time, plus other reports of unretrieved sick birds.

Many other reports, often accompanied by the dead robins, came from adjacent parts of East Lansing and Lansing, but these are not included in this study. The campus survey of dead birds is also incomplete as only the comparatively few persons who knew of my interest in this problem reported to me. In general, campus workers were not contacted, but two whom I chanced to meet on my morning censuses gave me some information on dead birds. In spite of a high death rate among campus robins, the April population remained fairly constant due to robin replacements. Apparently both males and females were quick to get new mates when their former mates died. However, during late May and June, 1959, replacements came more slowly and our counts of living birds were quite variable, ranging from a minimum of four to a maximum of 15. It is likely that some of the low May counts of living birds are incomplete, as the densely foliated trees may have concealed some non-singing birds. By the end of June there were still several oft-disrupted pairs trying to make a go of it, but by that time we had accumulated 50 records (with two possible duplications) of dead and dying robins on an area where the original spring population was about 10 pairs, which was also close to the maximum number present at any one time.

These data verify what we surmised in 1958, but were unable to measure precisely—namely that the total loss of robins in a situation like this may be several times greater than the entire population present

at any one time. In essence this means the more or less complete elimination of the original breeding population, plus one or more replacement populations. These data also show that the continued presence of robins on a given area is no proof that high losses have not been sustained, or that the losses are "inconsequential."

The spring of 1959 differed from 1958 in several respects: (1) there were some surviving robins on the campus at the end of June; (2) at least one female (probably three) lived long enough to fledge one or two young (though two dead young were found later near one nest site); and (3) in mid-July and later, 20 to 40 off-campus birds including young, visited the campus. (Possibly this summer visitation feature was overlooked in 1958, as we took only two censuses in July and August of 1958, compared to 10 in 1959.)

Thus, while our annual spring die-off of robins this year was low in actual numbers, the significant feature is that it represents several times the maximum spring population; obviously the campus is serving as a graveyard for most of the robins that attempt to take up residence in the spring (we have not recorded any unusual summer and fall mortality). What the mortality must be in areas of high robin concentration (1-2 or more pairs per acre recorded in several studies), we can only conjecture. To date about 45 different communities (all with Dutch elm disease control programs) in the Midwest have reported a similar die-off, with records of several to a dozen or more specimens on a single lawn and "at least 50" on a one-acre homesite. Perhaps fortunately, at least for the historical record, more people are now keeping accurate records on dead and dying birds, with specific details, whereas formerly we had mostly vague reports of "lots of dead birds."

In spite of these high losses (on an acreage basis the most conservative figures add up to millions annually), we have had little reliable information on what the effect is, or will be, on future populations. The spring and summer of 1958 have already gone on record as a notably lean year for robins, as well as many other songbirds, and follow-up winter counts have disclosed continued

# History of Dead and Dying Robins on North Campus, Michigan State University, East Lansing, 1959

April 13.

Male with symptoms near Music Building, photographed by Dr. Pirnie, not captured. Presumed to be the one found dead nearby, later in day.

April 16.

Tremoring robin (female) from near Phillips Hall brought to office by students at 4:00 p.m. Movies of it (Alfred G. Etter). Died a few hours later.

April 17.

Campus worker reported two dead robins to Dr. Pirnie near Music Building (one possibly the April 13 victim).

April 21.

"Sick" robin at Administration Building, reported by Dr. Petrides at 4:30 p.m. Not recovered. (We couldn't find it at 5:30 p.m.)

April 22.

Tremoring male near Union Building (Kettunen); another at Williams Dormitory (Schultze); and another at Band Shell (Scheid). All brought to office and specimens saved.

April 24.

Tremoring robin picked up near President's house at 9:00 a.m. Died in my office at about 10:00 a.m.

April 28.

One found on its back in Beal Gardens at about 8:00 a.m. Died at 9:50 a.m. One at Williams Dormitory "too sick to get out of way." Specimen not recovered.

April 29.

Dead robin, a day or so old, brought in from near Union Building by Dr. Pirnie. Campus worker told him he had picked up "several others."

April 30.

Male with symptoms (loss of equilibrium) near Williams Dormitory but it escaped (Kettunen).

May 1.

Kettunen brought in tremoring male from near Union Building. Mrs. Wallace picked up tremoring male in parking lot. Died a few minutes later. Both specimens examined by pathologist (Dr. J. H. Greve) for Newcastle disease, encephalitis, and other infectious diseases, but no disease found.

May 5.

"Sick" robin reported by Dr. Strong and Dr. Drew near Physics-Mathematics Building. Captured by Van Velzen and Wallace at 2:40 p.m. Died at 4:15 p.m.

May 6.

Kettunen brought in dead robin from near Williams Dormitory. Might possibly be the one that got away on April 30.

May 11.

Tremoring female seen at Mary Mayo Dormitory by Mrs. Wallace and student in early a.m. Not captured. Couldn't be found dead or alive at noon.

May 13.

Dead female found near Museum by student. Specimen saved.

May 16.

One near Phillips Hall—sick at 7:00 p.m.; dead at 11:00 p.m. (Pirnie). Specimen saved.

May 18.

Dead male near Power Plant (Van Velzen). Specimen saved. Another found dead near Band Shell by student. Specimen saved.

May 22.

Tremoring female picked up near Berkey Hall at 12:30 (Van Velzen). Was dead in office when I returned at 2:30 p.m.

June 7.

Adult male with tremors at Mary Mayo Dormitory at 6:15 a.m. (Mrs. Wallace). Dead at 11:30 a.m. "Pick-up man said he had picked up about 10 dead robins in this one area this spring. Student (at other end of campus) said he had found seven (were put in trash cans).

Same student found six more robins after June 7; three (one adult, two young) had tremors but died, the other three found dead. Specimens were saved for me but spoiled and were discarded later.

## Summary

Twenty seen sick or dying (15 retrieved, 3 later discarded, 5 others of uncertain fate). Five found dead, specimens saved.

Twenty-five found dead, specimens not saved.

—George J. Wallace

shortages on their usual wintering grounds (see *Audubon Field Notes*); but locally, in southern Michigan, 1959 showed some recovery of robins even in areas that were severely depressed in 1958. Larger numbers in 1959 are not an unmixed blessing, however, as the number of recorded dead has been far higher in 1959. Perhaps it is like a hunting harvest—if we can harvest a million pheasants in southern Michigan without seriously affecting the breeding stock, or shoot 19,000,000 doves in the states that permit dove hunting, then the loss of that many robins might not be significant—population-wise. Differences are that a hunting harvest in the fall takes largely birds which would not survive until the next breeding season, whereas a spring die-off of robins seriously affects, often more or less completely nullifies, reproduction over large areas of optimum robin range.

The extent to which other species share in this dilemma is less known, but our campus continues to exhibit a dearth of summer resident insectivorous birds and a compensating (?) abundance of the omnivorous or scavenger types. A sample breeding-bird census on June 7, for example, yielded 194 grackles, 103 house sparrows (very incomplete as most sparrows were still roosting in the vines in the early morning), and 55 pigeons and doves. Starlings and cowbirds, though not abundant as nesters—cowbirds have few hosts available—come in by the hundreds in late summer from a nearby roost which I estimated at 30,000 to 40,000 last year. Many of these scavengers subsist, in part at least, on hand-outs intended for the tame ducks on the river, or on other tidbits scattered about the campus; on July 6 I watched a battle royal between a starling and a house sparrow over an apple core. By contrast, on the June 7 census, we saw only three cardinals (1 per 60 acres), two orioles; one each of three flycatcher species; and no warblers, vireos, nuthatches, chickadees, wrens, or woodpeckers (except the flicker). In summary, in one of the country's largest and most bird-attractive arboreums, we had none, or at most, one or two pairs per 100 acres of what are ordinarily our commonest insectivorous birds.

—THE END.

## THE PRESIDENT REPORTS TO YOU — Continued from page 65

### Convention — 1960

Make a note—we could not change the national election date in 1960—a presidential election—and to avoid conflicting with it, your directors voted to advance the date of the Society's next annual convention to October 29 through November 1, 1960. It will again be held in New York City, starting on Saturday, October 29. The business meeting, election of officers, and annual dinner will follow on Tuesday, November 1.

### Corkscrew Swamp and a New Wildlife Tour

Because a road was being built to give access to Corkscrew Swamp Sanctuary in Florida, the Sanctuary was closed to the public from August 1959 to mid-January 1960. The completion of the road and new facilities allowed us to reopen it to visitors on January 19. As you may have read in the last issue of *Audubon Magazine*, we offer a new Audubon Wildlife Tour out of Naples, Florida, for those who wish to visit

Corkscrew Swamp under the experienced leadership of Alexander Sprunt, Jr. Individual visitors are, of course, welcome. To help us meet the costs of additional interpretive personnel and improved facilities to accommodate the increased number of visitors that the new road is expected to bring to the sanctuary, an admission fee of \$1.00 is being collected at the gatehouse. For those who come on their own, a self-guided tour of the boardwalk is available in booklet form, and the resident staff is always happy to answer questions about the sanctuary.

Corkscrew Swamp Sanctuary is open 9:00 a.m. to 5:00 p.m. Tuesday to Sunday inclusive. It is closed on Mondays. The charge of \$1.00 per person is to people 12 years of age and up; children six through 11 years of age are admitted free if accompanied by a responsible adult. Children under six are not admitted; nor animal pets. No picnicking or overnight camping is permitted within the boundaries of the sanctuary.

## LATE NEWS FROM THE FIRE ANT FRONT — Continued from page 56

September 1959, another quiet announcement to research workers changed the amount to only 1/4 pound per acre, with a second 1/4 pound application three to six months later. Why were so many acres of the Southeast deluged with the larger amount? Why was research not conducted to determine that the lesser amount should be used? Why does a control agency take chances with domestic animals, wildlife, and people by subjecting them to such hazards as this toxic chemical? It is dangerous when taken into the body through the mouth but also when it touches the skin. We ask that research be conducted BEFORE control programs are begun. There is no indication whether the lesser amounts of chemicals per acre will be less damaging to wildlife than the 1 1/4 or 2 pound rates. Funds for research upon these questions should be made available to the U. S. Fish and Wildlife Service and to state conservation departments. Although the last Congress passed the Magnuson bill to authorize the appropriation of \$2,565,000 for pesticides research by

the Fish and Wildlife Service, only \$280,000 was actually given to this agency for the present fiscal year!

Since the residue of chlorinated hydrocarbon insecticides may wash into streams, ponds, and even into public water supplies, medical and public health authorities are disturbed at this increasing hazard. For heptachlor accumulates in human bodies as it does in the bodies of insects, earthworms, birds, mammals, and other organisms. There are increasing indications that these chemicals cause increased incidences of various forms of cancer, of some heart disease, and of mental disturbances. More money is needed for research upon the accumulative, or long-term effects of such pesticides upon people as well as upon wildlife. So long as unwise control programs are continued, more inspectors are needed to examine milk, meat, fruit, and vegetables for chlorinated hydrocarbon content in order to prevent shipment and consumption of contaminated foodstuffs. Why, indeed, should the imported fire ant control program be continued?

—THE END



A male western bluebird steps into the author's hand to get a mealworm.

By Frank F. Gander\*

## *Western Bluebirds in My Garden*

All photographs by the author.

SOON after I started providing water for the birds in my garden, western bluebirds discovered it, and from September to March would come almost daily to drink and bathe. In a short time, they lost much of their shyness and would come to the water even while I

\* Mr. Gander, a naturalist and nurseryman of Escondido, California, is a frequent contributor to *Audubon Magazine*. Readers will remember his recent article, "The Story my Oak Tree Tells," published in our November-December 1959 issue.—The Editor

Entrance to the author's nursery. The birdhouse in which the bluebirds and ash-throated flycatchers nested is in the Engelmann oak at left of the building.

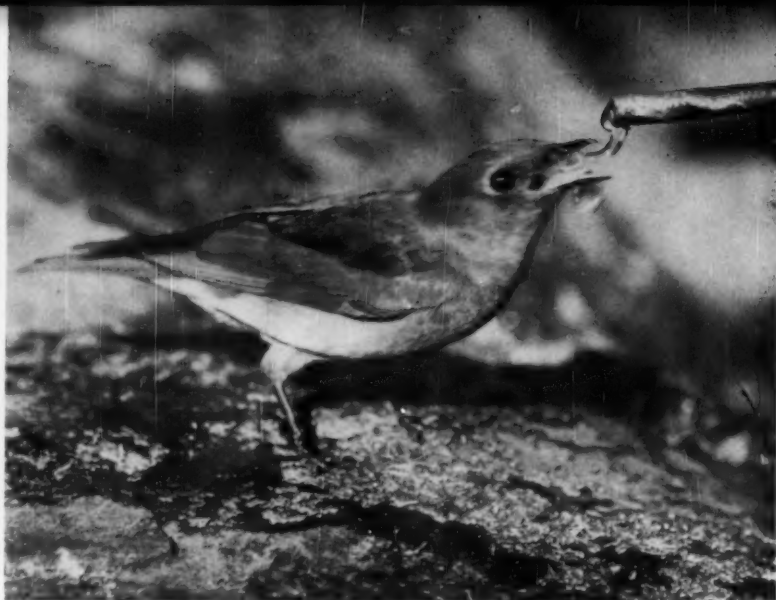


watched from about ten feet away. They were such beautiful birds that I wanted them to be even more fearless of me. One mid-September day I scattered some mealworms where they could be easily seen by western bluebirds that were perched on wires overhead. Several came down to pick these up, and I felt that a start had been made.

This was the last of my stock of mealworms, and because of a delay in obtaining a fresh supply, it was the last of October before I found opportunity for further work with these birds. Yet by November 2, three bluebirds—a male and two females—were coming to feed several times daily, and soon they took possession of the area and started driving away others of their kind. This possessive attitude increased when they found a bird box in a small oak tree, and all three inspected it together with much twittering. The two females showed no animosity toward one another nor did the male appear to favor one over the other.

By tempting them with mealworms, I drew these three birds ever closer to me until, on November 13, the male fed from my hand. The females were a little more timid, and it was not until November 17, that the dominant one of these fed from my hand. The other female went away with a strange male before she had ever grown quite tame enough to come to my hand. The remaining pair continued to control the area, and at night would roost in a tangle of honeysuckle vine.

About this time, white-crowned sparrows became so numerous and so tame that it was seldom possible for me to get mealworms to the western bluebirds. They began to wander more in their search for food. All through the winter, they continued to drive others of their kind from the area, however, and on March 19, the female began to carry nesting material to the birdhouse. Flying down to the ground, she would gather a large mouthful of little weedy sticks and dry grass, then return with this to the bird box. Some of the sticks were so stiff that she had trouble getting them through the entrance hole. After several unsuccessful attempts to enter, she would fly to a limb of the tree, then make a new approach to the box. Every time I watched her,



A male western bluebird drinks from the author's birdbath drip-pipe.

she eventually got in with her material.

The male never helped with the nest-building nor did he sing. Mostly, he just sat around and watched, and once drove away another male that tried to go to the bird box. By March 28, the female was spending much time on the nest, and the male took a mealworm that I gave him and fed his mate there. However, on the first of April, they were observed mating so that I was not certain of the exact time of egg-laying.

Throughout the time that the female incubated, the male continued to feed her on the nest, but she would leave at intervals, possibly to get food for herself, to get water, or perhaps just to break the monotony of her task. Everything seemed to be going well with this pair, but I wondered what would happen when the ash-throated flycatchers returned from their winter in the tropics, for they had nested

in this box for two previous seasons. I saw the first one of the pair on April 7. It wanted to go to the nest box but was driven away by the western bluebirds.

On April 17, I saw both bluebirds carrying food to the young ones in the nest box, and soon most of their time was devoted to this task. Either bird would carry away fecal sacs, but not on every trip. Watching carefully, I saw that they were raising their babies mostly on grasshoppers and moths. They hunted for these just as they foraged for such prey during the winter—sitting on a lookout perch, often the electric wires, and watching the ground below for some insect to betray its presence by movement. With kestrels (sparrow hawks) hunting the same territory by the same methods, there was sometimes friction between these two species.

On May 6, I noticed that both of the western bluebirds were sitting around on the wires as if they had

*Continued on page 83*

Two female western bluebirds photographed while eating mealworms.



# PORTRAITS

## *of the Inquisitive Young*



A young red fox, native North American.

*All photographs by the author.*

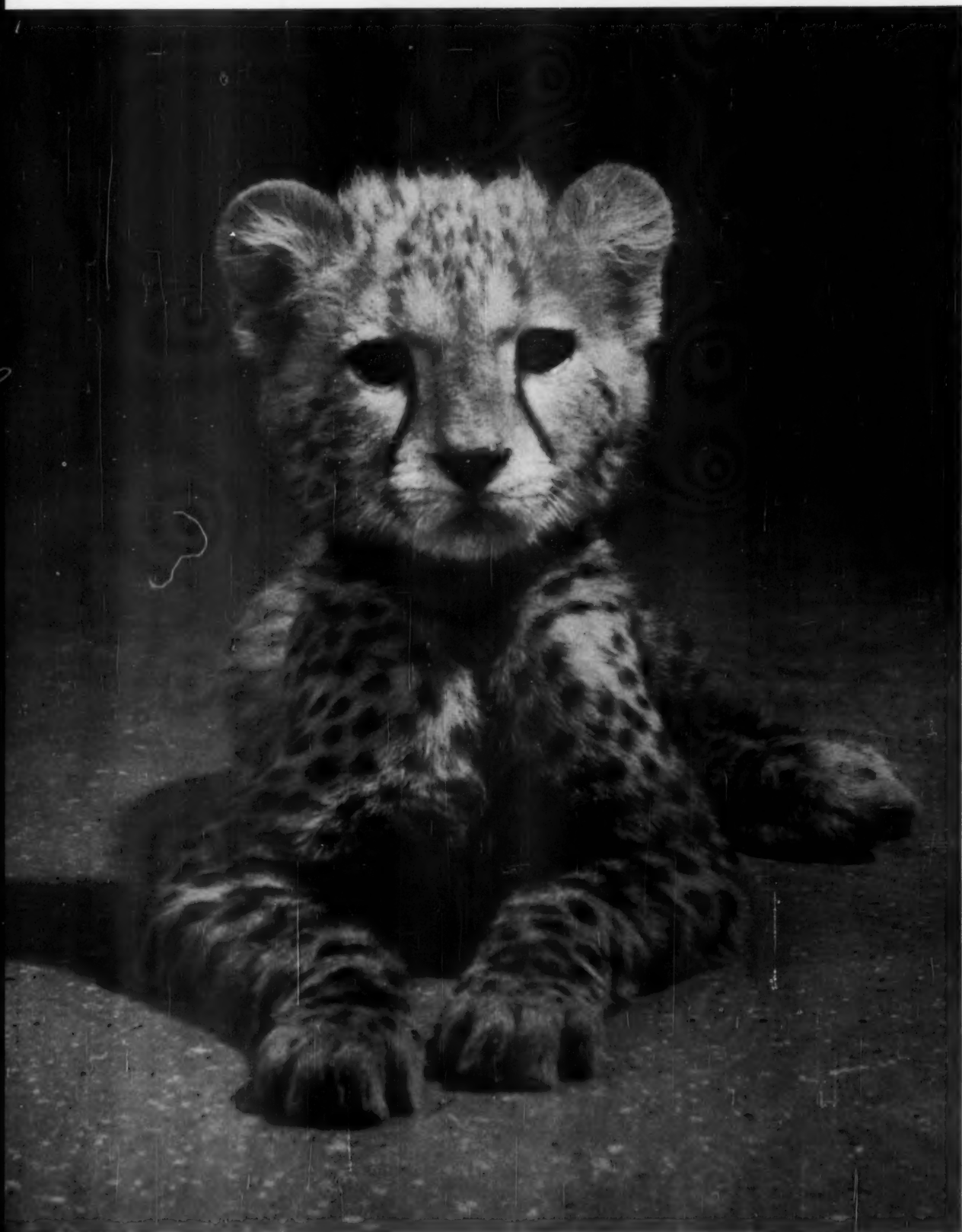
**By Gordon S. Smith**

**A**S pictures have a universal language, so cubs, kittens, and pups have a universal appeal. American or foreign, young animals evoke our affection, kindness, love, and possessiveness. Both grown-ups and children succumb to their charm.

Cubs, kittens, and pups. . . . A bone, a ball of wool, and a stick of wood. . . . Rain, puddles of water, and muddy feet. . . . I watch amused, and the hours pass as minutes. The inquisitive young fascinate the senses and hold our attention beyond our spare time, but they are not wasted hours!

What is it that turns our heads to this "growing up"? Children are images of adults. Their "growing up" is a source of amusement. Does the cub, kitten, or pup appear to do the same thing to us?

I watch the cheetah cub as it runs; it may dream of the open plains where it speeds after its prey up to



A three-months old cheetah, native of Africa, Asia, and India.



←  
**Spiny mouse, native of India, Arabia,  
Palestine, North and East Africa.**

**Young porcupine, another native North  
American.**

60 miles an hour. A strong stroke of its paw and the antelope is felled. My cub cuffs me on the arm, playfully. He sits and stares straight at me, seeming to penetrate my inner thoughts. I love him, this hunter from India.

Maybe it is the cunning of the red fox. Is it inbred in the young one? Or must it have wild training? I watch its eyes, and see how alert and tense it looks! Its ears are cupped, ready for the next move.

The baby porcupine; born with quills, soft at birth, ready to give me a defensive swipe with his tail before he is weaned. What is he doing now? Dancing? Standing up high on his rear legs, he sways back and forth in a kind of ritual to the gods. He seems to reach up with his forepaws for some unknown and unseen object. Slowly he comes down to earth and reaches for a cabbage leaf and munches, the succulent juices running down his cheeks.

The young woodchuck, ready to pick a friendly fight, stands his ground. He boxes with me for an opening, grabs my hand in his, and takes hold of my thumb between his incisors. He tugs, and suddenly gives a sharp twist to the right. He plays roughly now because he's growing up!

"Whiskers" is a lively spiny mouse from Egypt. He darts here and there because there is not a moment to lose. For what? Has he lost something? Is he really looking for food? There is a small pile of seeds in the corner. A snap of my fingers and he stops. A second snap, and his trumpet-shaped ears twitch. His bulbous eyes watch, only his whiskers, standing out like needles from a pin-cushion, waver. Then he is gone!

These are not wasted hours. It is time filled with learning and pleasure. It is the inquisitive time, when young wild animals test and try, seek, and find, sniff and yawn, stretch and grow into animalhood. No, time is never wasted when I can watch wild cubs, kittens, and pups.—THE END

**Young woodchuck, a common American  
mammal.**



# "YOURS, *Jerry Stillwell*"

The story of a man and his wife who traveled more than 100,000 miles to record the songs of American birds.

All photographs by the Stillwells, unless otherwise noted.



The recordings began with the song of the cardinal. Photograph by Karl H. Maslowski.

Below, Jerry and Norma Stillwell with recorder and parabolic reflector that catches bird songs.

[EDITOR'S NOTE: Jerry Stillwell died on September 4, 1959, in Dallas, Texas. His and Mrs. Stillwell's last bird recording trip was in the spring of 1959, from northern Florida to Maine "trying mostly for water and shore birds, a difficult, unmusical, and usually non-vocal group."

They have recorded the songs and calls of more than 250 species of birds of which 160 have been published on records. All their unpublished bird recordings have been presented to Dr. Peter Paul Kellogg, of the Laboratory of Ornithology, Cornell University, Ithaca, New York.

The following account of them and their work was written by Mrs. Archer, a neighbor, in a series of visits to the Stillwell home near Fayetteville, Arkansas.]

By Mrs. Laird Archer

THE Stillwell recordings began with the song of a cardinal—or perhaps even earlier in the little town of Erie, Kansas, in the horse- and buggy days, where Jerry grew up.

"I began wandering through the woods looking at birds when I was five years old," said Jerry. "My eyes came about level with Dad's coat tails as I followed him. It was he who introduced me to the pleasures of outdoor living. By the time I had earned enough money to go to the University of Kansas I had filled three memo books with my field notes on birds."

The song of the cardinal came much later, after Jerry and Norma were married and had, they thought, retired. Both Jerry and Norma were fond of music and, to avoid the inconvenience of changing records, Jerry began making tape recordings of their favorites. "I was playing one of our tapes when Norma asked me to play it again, and listen; she had heard the song of a cardinal which had accidentally added his voice to the tape through an open window. It was Norma's idea to open the window and try for the cardinal again. We did. It is our first recording, and we still have it. A new world was opened to us."

This "new world" led to over 100,000 miles of travel—a second career of bird-song recording which has taken them into nearly every state in the Union, much of it into the by-ways, with a car loaded with sound equipment.

To a listener of the bird-songs recorded by Jerry and Norma, it seems as if the birds had only waited for their cues and at the conductor's nod had given their best solo performances, while others waiting in the wings provided background music—a murmur of approval for an acknowledged artist. The Stillwells know otherwise. Only patience, per-



sistence, and enthusiasm, and weeks of editing, have made possible the three volumes of recordings which have come from the Stillwell tapes.

So completely mutual was their enthusiasm that each supplemented the other, and in the finished records it is sometimes Jerry's, sometimes Norma's, voice which is heard in the brief informative interludes. Even their marriage came about partly through a love for birds. "It was in college that I met Norma," said Jerry. "She was studying violin, but when she learned I was interested in birds she threw the violin away and bought a bird book." "Not true," said Norma, "I was already interested in birds; you forget I grew up under three mulberry trees." Jerry: "We got into the habit of walking together and looking at birds, and in 1917 we were married. Now the gal knows a darn sight more about birds than I do." "Not true, either," said Norma.

Following his years at the University of Kansas, where Jerry studied mechanical engineering, he worked for 23 years for the American Petroleum Institute, in Dallas. Bird-watching became a leisure occupation during those strenuous years, but Norma and Jerry found in Dallas many congenial bird watchers and were in demand as speakers. Norma did most of the speaking before younger groups; Jerry organized the Dallas Ornithological Society.

In 1948 Jerry retired for reasons of health. "They told me to go fishing, go play golf," said Jerry scornfully. Instead, Norma and Jerry entered their "new world."

"Before long we bought a house trailer, sold our home, and took to the road. Our slogan was 'follow the bluebirds.' That was in December 1948. We went to Florida, the lower Rio Grande Valley, to the north, south, east, and west. That trailer was a Jonah—too hard work at our age. We got rid of it later."

In the fall of 1950 they decided to look for a home. Their requirements: quiet, adequate facilities, plenty of room, and plenty of birds. These they found in a ten-acre place outside of Fayetteville, Arkansas, in the Ozarks, and named it Avian Echoes. Many of the bird-songs on their first published record came from these ten acres. They had given illustrated talks in Dallas, using some early published records of bird-



Louisiana water-thrush photographed at nest by Allan D. Cruickshank.

Norma tried to catch the song of a Louisiana water-thrush as it flew up and down this Ozark creek.





Organ-pipe cactus in southwestern Arizona, where Jerry and Norma recorded the songs of cactus wrens, Scott's orioles, and phainopeplas.

Photograph of pine siskin by Hugh M. Halliday



This trail, far above Pecos River, east of Santa Fe, led the Stillwells to their recording of a pine siskin.



songs. But in these pioneering records the space devoted to each bird was short and lacking in variety of song. And Norma's beloved tufted titmouse was missing.

"We knew what we wanted," said Jerry, "but we were a long way from knowing how to get it. Our agreed objective was to show the versatility of individual species, with no waste space. That is the prime feature of our records—often only two repetitions of each song pattern, but from several to many different songs, depending on the versatility of the species.

"When we began only two or three fellows were recording. Now people all over the world are following birds with tape. We don't publish learned papers. We record for fun. Our records were published to help beginners and to share our pleasure in bird-songs.

"For four years we bought and threw away equipment—microphones, wire—and bought again, gradually improving our recordings. A fellow in a big radio station in

Kentucky said he could build us what we wanted, and he did—a special job. Now we can use a thousand feet of line with no loss in volume.

"It was late 1950 before we really got our equipment into top shape. We knew just what to do if the birds would cooperate. Norma holds the reflector and drags a thousand feet of line, more or less, while I run the recorder. She points the reflector mike at any and every bird that calls within listening range or sight. And we signal back and forth—sometimes with whistles, sometimes with talk. I never know where Norma's going to turn up next, working her way into a good spot. It's a two-person job.

"We try to find the bird's favorite perch and set up the microphone there." ("Jerry has an uncanny sense for knowing where the bird is going to be," said Norma; and "Poppycock," replied Jerry.) "Most birds have their favorite singing perches. Down near Miami my friend Paul Kellogg had a dead pine just outside his window where two mockingbirds sang everyday. Not many birds are that predictable.

"We scout out a recording site—that can take days—and the place can be a long way from where we're staying. Then we get up at three o'clock and drive to it, hoping that the wind won't come up, that no planes will fly over, that it won't rain, and that the birds will sing. It's cold that early in the morning but we find that if we set up our equipment before dawn we can get the birds with less interference from sounds we don't want."

"Almost anything can happen," said Norma. "Once in the Adirondacks we had scouted a winter wren in a bog on a lightly-traveled road, 40 miles from our base cabin. We got there before dawn and there was the wren. It was a big thrill; birds don't always sing right under one's nose. We were all ready when Jerry's cold fingers let several hundred feet of tape slither into a tangled spiral on the ground. By the time we had warmed our hands and rewound the tape the bird had vanished. We had to come back the next day—but we got the wren."

"Our first long-playing record came out in the fall of 1952," said Jerry. "It represents common birds from the eastern states. I haven't the

slightest idea how much time and travel and tape went into it. We worked four years before we started on it. Probably 800 hours of editing went into that record; it went through three or four transformations.

"Most of the birds on our Number 2 record we got in one year of travel. We knew what we wanted, we knew where to go, and we had good luck. We were especially lucky on warblers that, far too often — for us — sing from the tops of tall trees and, as a class, do very little 'warbling'; usually the song is a high-pitched, thin, 'zee, zee, zee.' On this trip we found a 4,000-foot plateau at Mountain Lake, Virginia, with cut-over timber — low trees — heavily infested with little caterpillars, where the migrating and resident warblers were having a feast. Thirty thousand feet of tape went into that record.

"Western birds were harder. In the East you can sometimes get ten recordings per mile as compared to one in the West. Western birds begin at about the 90th meridian, the high central plains, but they have extremes of habitat. Habitat, of course, can vary from low to high within a small area. For three years we traveled about 50,000 miles before we were satisfied that we had a good, representative collection of songs of western birds.

"We reduced 25 miles of tape to about eight miles, and out of that selected 3,000 feet for the record. By that time we had more species than we could find room for.

"At last we got two ground doves, Mexican and Inca; we got them but we couldn't use them because they were too faint. Possibly we should have had a larger reflector to bring in those lower-pitched bird voices. But then Norma would need a strong-armed helper to carry equipment — mike and reflector, mike wire, binoculars, Peterson's 'Guide,' sometimes a tripod to hold the reflector, sometimes a folding stool to make patient waiting more comfortable.

"I'm usually disappointed in grouse and doves. The blue grouse lives around an altitude of 2,000 to 8,000 feet, by himself, not in groups. In a pine forest you can hear him talking but you can't tell where he is. Then when we finally got the reflector trained on him, all he said was

*Continued on page 82*



Swallow Falls State Park in western Maryland, where the Stillwells made their favorite recording of the songs of a wood thrush, a veery, a black-throated green warbler, and a "duet of ovenbirds."

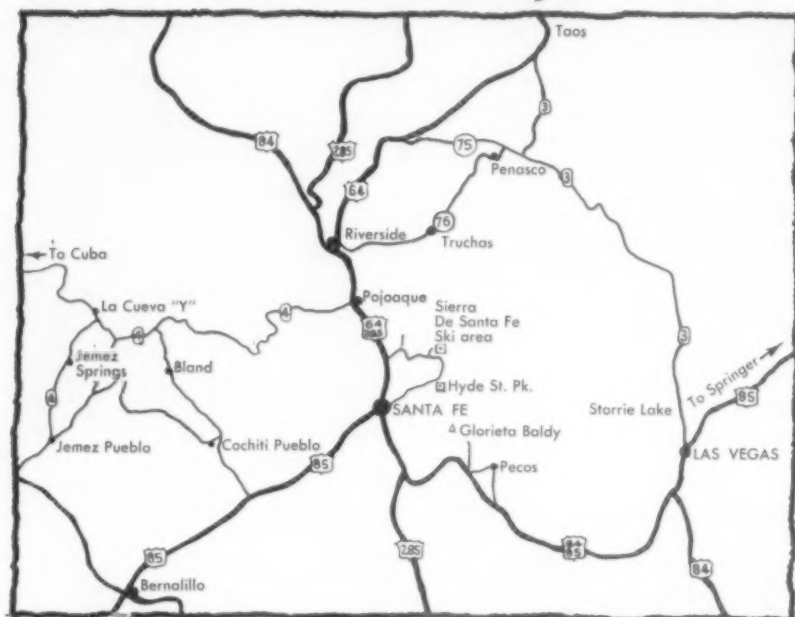


A Puget Sound (white-crowned) sparrow sang from this log as the Stillwells recorded its song on Rosario Beach, near Anacortes, Washington.

Photograph of white-crowned sparrow by Allan D. Cruickshank.



# BIRD FINDING WITH *Sewall Pettingill*



## WHERE TO GO • WHEN TO GO • WHAT TO SEE

### Introduction

My visits with the Tropical Audubon Society in Miami, Florida, as a lecturer for Audubon Screen Tours, have always been made doubly enjoyable through the hospitality of Mr. Louis A. Stimson, an enthusiastic and keen observer of birds.

Mr. Stimson, has been a steel metallurgist by profession, and he has been a bird watcher since he was a boy. At the age of nine, in the Caroline Islands, he recalls being much impressed with a nest which he now believes was a fairy tern's. His later boyhood experiences in Massachusetts, where bird watching already had a wide following, and his undergraduate years

at Oberlin College under the influence of Professor Lynds Jones sharpened his interest in birds and natural history.

Since college he has traveled extensively in the United States, visiting many national parks, national monuments, and wildlife refuges. Records of his observations have been published in *The Auk*, *Everglades Natural History*, and *The Florida Naturalist*. He contributed many of his field notes and records to Alexander Sprunt, Jr., for use in "Florida Bird Life."

Mr. Stimson, now retired, lives in Miami. It is with pleasure that I welcome him as a guest columnist.  
—Olin Sewall Pettingill

### By Louis A. Stimson

AS an introduction to a two-year trip in the West with a mobile home, my wife, Dorothy, and I spent two months (from July 25 to September 25, 1956) in Santa Fe. During this period we observed 142 bird species of which 63 were either new to me or (in a few cases) had been seen only on previous trips to the

west coast. I will gladly furnish a list of species to anyone interested.

Mr. J. Stokley Ligon's chapter on New Mexico in Sewall Pettingill's "A Guide to Bird Finding West of the Mississippi" describes only one trip from Santa Fe. Using information obtained from the Santa Fe Chamber of Commerce, the National Forest Service office, the regional headquarters of the National

Parks Service, and Florence Merriam Bailey's "Birds of New Mexico," I found that there were many other available trips of possible interest to the bird finder.

The most productive areas for birds turned out to be near our temporary home, the Trailer Ranch, about four and one-half miles south of Santa Fe on US Route 85. Before breakfast strolls (5 to 7 a.m.) down the pinon- and juniper-covered slopes to the west and northwest of the Trailer Ranch along the alfalfa fields and lanes beyond were always rewarding. The land is well-fenced but the only owner I encountered offered no objections to my visits. Another birding area near at hand was a little farther south off Route 85 on the Airport Road near the entrance to the Santa Fe Golf and Country Club, where there were irrigation reservoirs on each side of the road. These ponds yielded my first eared grebe and many waterbirds and shorebirds. Broad-tailed and rufous hummingbirds inhabited the Kansas sunflowers around the upper pond. These two areas produced 87 species for my list.

The Pecos Canyon trip described in Pettingill's guide is interesting and worth while, but there is now an easier way to reach the higher elevations. A good gravel road leads to Hyde State Park, northeast of Santa Fe, and a fairly good mountain road continues up to the Aspen Basin or Ski Area at an elevation of 10,500 feet. There are many places along this route wide enough to park a car and look for birds or admire the scenery. At the end of the road the year-round operating ski-lift will carry one to an 11,000-foot height and a wonderful view. After some acclimatization, an active bird finder may prefer to walk up the winding truck, or work, road. In the woods along this road, Dorothy spied our first blue grouse. We found Williamson's sapsuckers, gray jays, green-tailed towhees, and white-crowned sparrows around the Basin. Near the top of the ski-lift a well-defined horse trail to the left winds up the open mountainside to the forested ridge above Santa Fe Lake, and continues an easier ascent to a point above the timberline on the upper shoulder of Lake Peak. A little care is needed to complete the climb to the top of the peak, but

even at 65 years young I found it not too difficult. A golden eagle soaring overhead while being scolded by a Clark's nutcracker from a safe rock perch below perhaps offered some compensation for the climb, but, if that were not enough, the wonderful panorama from the 12,408-foot peak was more than sufficient.

The return auto trip may be varied by taking the right-hand turn about two miles or more below the Basin. A left turn at the next intersection leads down through the beautiful Pacheco Canyon, and onto State Route 22 to Tesuque and U.S. Route 285 back to Santa Fe. A light shoulder knapsack and small canteen are handy for an all day tramp. As early as August 25 I found a morning temperature at nine o'clock to be 36°F near timberline. Four trips to Aspen Basin, with three extended to Lake Peak, yielded a list of 53 species.

**Bandelier National Monument** is 43 miles northwest of Santa Fe. Drive north on US Route 285 to Pojoaque and west on State Route 4 to the Monument entrance. A booklet on the Birds in Bandelier may be purchased at headquarters. I found several species that were not listed either in the booklet or in the headquarters' files. The most unusual, and far out of their normal range, were two Mexican jays which we found on the River Trail, on July 30. This observation was confirmed later by Ranger Thomson, who reported seeing the species in the campground the first week of September. Later I saw many Mexican jays in southwestern New Mexico and Arizona. The call note is distinctive and was definitely the same at Bandelier.

There are several trails in the Monument available for bird finding. The trail upstream along El Rito de los Frijoles is perhaps the easiest and supposedly the birdiest. Dorothy and I turned back at the 4-mile marker for an 8-mile round trip. Of course, we carried lunch. The trail downstream for three and one-half miles to the Rio Grande River was harder not only because of the steeper grades, but mainly because we made the return trip in the heat of the early afternoon. The Stone Lions Trail, starting a little above the campground, rises

rapidly up the canyon wall to the mesa above. There are then three intermediate small canyons to be climbed before reaching the famed Alamo Canyon. That makes a nine-mile round trip. Horses are available near headquarters for more extended trips. The total bird list for the Monument is around 120 species. On seven all-day tramps I found 64.

Beyond Bandelier rise the Jemez Mountains, a fascinating region from both historic and scenic viewpoints and with many good birding spots. The Santa Fe National Forest covers much of the area, with campgrounds and picnic areas situated along the roads. At the Forest Service office, above the Santa Fe Post Office, I found an 11-page pamphlet, *Motor Trip Santa Fe National Forest*, with a motor log for three trips into the region. If this is not available, I would suggest for birding purposes the following two trips on different days:

(1) An outside loop. From Santa Fe go south on US Route 85 to Bernalillo, thence right on State Route 44, and again right on State Route 4. Nine miles north of Jemez Springs is La Cueva "Y". Turn left here on State Route 126 (towards Cuba) and continue about nine miles to Fenton Lake. American coots breed at Fenton Lake and the highly-colored young are interesting. Audubon's warblers are numerous. Just east of the lake I found my first Merriam's turkeys, truly beautiful birds. The bee-balm (*Monarda* sp.) was in bloom and broad-tailed hummingbirds were common through the mountains and numerous in the fenced fields a little west of the "Y". Return to the "Y", turn left on Route 4 to Pojoaque, turn right on US Route 285 to Santa Fe. A one-mile side trip to the right 8.2 miles east of the "Y" will bring you to Jemez Falls Picnic Area where it is worth while to look for pygmy nut-hatches and other birds. Farther east, Route 4 skirts the Valley Grande, said to be the largest extinct volcanic crater in the world, and crosses the pass where one has an aerial view of the Los Alamos nuclear research center.

(2) An inside loop. Go south from Santa Fe on US Route 85 for 22 miles to the foot of La Bajada Hill, but do not cross the Galisteo River Bridge. Turn right on the

road toward Cochiti Pueblo. At 7 miles, turn right, cross the Rio Grande, and continue straight ahead through Bland Canyon, an old gold-mining area, to a point 29.5 miles distant. Turn left on State Route 4 for 9.9 miles; then left on the road to Paliza. Six and one-half miles down this road a side road on the left leads to Cerro Pelado Lookout Tower, a 7-mile climb to an elevation of 10,000 feet, and a panoramic view of the Jemez region. At 6.4 miles from the turnoff to the Lookout Tower lies the Paliza Campground. Here one has a choice of return routes. A sharp reverse turn left takes you to Bear Spring and is about 39 miles from the starting point on Route 85. The road leads through a dense forest and then through a desolate "burn" to the eastern escarpment. With no trees to block the view the panorama from here is stupendous. The road winds down the escarpment and along Peralto Canyon, where the white Tent Rocks, a peculiar result of erosion, are seen across the canyon. Passing the entrance to Cochiti Pueblo (unless you wish to visit it), continue to Route 85 and turn left to Santa Fe. This route may not be passable after protracted wet seasons, but we found it good in 1956. The alternate route is to go straight ahead at the Paliza Campground to Jemez Pueblo and, bearing left on Route 4, return to Bernalillo via Routes 4 and 44, thence left on Route 85 to Santa Fe. My trips through the Jemez Mountains gave me a list of 39 species.

The "scenic" route to Taos is not only pretty but has many birding possibilities. Follow US Route 85 east from Santa Fe to Las Vegas. There take State Route 3 north. A few miles beyond Las Vegas the road skirts Storrie Lake, where waterbirds and shorebirds may be found. The Vale of Mora is attractive and the climb out of Vigil Canyon is spectacular. Crossing over a pass the road runs for some miles down the well-wooded Embudo Creek Valley. On approaching Taos the highest peak in the state, Mt. Wheeler (13,160 feet), comes into view. Pettingill's guide describes two birding trips from Taos.

Farther east on US Route 85, between Las Vegas and Springer, there are some good birding ranch

ponds, one quite large. Well east of the mountains the open plains are far-reaching. It was along here that Dorothy spotted our first prairie falcon. In this same area range black-billed magpies and common crows.

We found the drive to Glorieta Baldy Lookout Tower at 10,199 feet, with a walk along the Thompson Peak Trail, quite interesting. Nineteen miles east of Santa Fe, on US Route 85, take the left fork (State Route 50) to Pecos. A short distance beyond the fork watch for a left side road with a "Lookout Tower" sign. Follow it to the tower.

The 13,000-foot heights of the Truchas Peaks may be reached by going north from Santa Fe on US Route 285 to Riverside. Turn right there on State Route 76 to the vil-

lage of Truchas. At Truchas, turn right along the irrigation ditch, and, crossing the Rio de Truchas, continue on up into the mountains. Birds were numerous along the stream. Precise directions for the Truchas Peak Trail should be obtained at Truchas, or better, at the Forest Service office in Santa Fe. An interesting loop back from Truchas to Santa Fe may be made by continuing north on Route 76 to Penasco, thence left on State Route 75 through Dillon Canyon to Embudo, and left on US Route 64.

Besides the birding and scenic drives Santa Fe offers much in other forms of interest. Dorothy and I will long remember our two-month interlude in that delightful, quaint city. —THE END

**"YOURS, JERRY STILLWELL" — Continued from page 79**

'oomph.' Couldn't use that.

"After the birds, we find the people most interesting. Folks are usually friendly, and we ought to know. Once when we were parked in Branson, Missouri, a couple came over to see what we were doing and the next day the wife came out with a platter — whole 'dern' dinner on it. We ran across people all along who insisted on doing things like that. Must be some connection between birds and hospitality.

"Finally we decided we couldn't travel any more without some money. Luckily we found a publisher. He didn't know birds, but he decided to take a flyer. We might pay all our expenses if we ever stayed home and gave our royalties a chance to catch up. It's not a way to make a living, but it's fun, and we do see the country."

When the Stillwells returned from a recording tour they were likely to have 40 or 50 reels of tape. Then began the editing. First the tapes were listened to — all of them — and notes made in addition to the notes taken in the field.

Then the tapes were run through again and sorted by species. Finally each reel was cut up into pieces of varying length, by species, and these joined together until all the songs from one species were on one reel.

Next, they listened to each reel as a whole, to get a general idea of its contents. At this point they dictated on another tape a rather detailed summary of where the songs were re-

corded, what kind of equipment was used, and specific details regarding the particular song. This tape was then cut and spliced with the recorded song tape with each spoken comment in its proper place.

This does not make the tape ready for release. In choosing a particular song from a particular bird, from all those recorded in the field, the most careful selection must be made. The number of repetitions were counted, and the number of seconds between each. Brief written notes were used in connection with the listening, to aid in the choice.

"Our meadowlark reel," Jerry explained, "contains about 40 song patterns. From these 40, six or seven must be chosen. This requires the most concentrated listening. We have devised a sort of shorthand for drawing diagrams of songs. Then sometimes we get the whole tape finished and find something we don't like. We hunt through our files and substitute something better.

"Painstaking patience has just as much to do with the quality of records as the original recording. We put like songs together—that's a complicated thing; the birds may be of a different genus—maybe not. But hearing similar songs next to each other on the records makes it easier for the listener to get the distinction.

"We've learned never to make a negative generalization regarding bird-song, because tomorrow the bird may do what you said he couldn't. Flycatchers aren't consid-

ered singers, but each species has a distinctive dawn song. And once—just once—we heard a cardinal's courtship song—quite different from the typical cardinal song. That was before we had a recorder.

"The white-eyed towhee, recorded in the Cypress Gardens, also has a special courtship song. He came to the microphone we had placed in a thicket and gave us the most finished song we ever heard from a towhee.

"Every song or call we recorded carries us back to the field and our memories. The Audubon warbler means to us the Sangre de Cristo range in New Mexico, 7,000 feet up. Our prairie chickens we found in Oklahoma. We were lucky in Nebraska; on the North Platte River we were just at the right time for migrating cranes.

"In the Poconos we recorded our first hermit thrush, deep in the hemlock woods. Our pine siskin came from Windsor Ranch, in New Mexico. A magpie conversation is our memento from the Garden of the Gods. Western grebes mean Klamath Lake, Oregon; Scott's oriole, Ramsey Canyon in Arizona.

"Our bird memories are also flower memories, and tree memories, and landscape memories. And memories of friends. Friends have helped us, many times."

One might have expected the Stillwells to remain at home at Avian Echoes, with its comfort, convenience, and sweep of view, and rest from their travels. But the Stillwells—as well as birds—were unpredictable. Soon they were talking about which way to go—west or south?

It was not long before the usual series of postcards mailed en route began to arrive: Mesa, Arizona. "There are thousands of Gambel's sparrows in this country now. *Not one* singing. Reported to be on strike against E. Taft Benson. . . ." Tucson. "We backtracked to try for the elf owl—not yet found. Just now I am trying to recuperate from burning the candle at both ends and in the middle on that derved owl. . . . Devil's Lake, North Dakota. "This country full of lakes. Lakes full of ducks. And ducks full of abhorrence for mikes. . . ." Ely, Minnesota. "Saw five loons yesterday—and not one had a good word to say. . . ."

All signed, "Yours, Jerry Stillwell."

—THE END

nothing to do. For several hours I watched them and not once did they go to the nest box with food. At times, the female would fly to the tree and sit on a branch and call—then fly away again. I became worried, so I tossed some mealworms out for the birds right under the nest tree. The female came down and picked up three of these, then perched on a limb of the tree and called. The male picked up a worm and went right to the box to feed the young ones. The female scolded him and sputtered around quite a bit, but finally, she, too, went to the box and fed the nestlings. Both parents had been met with eager cries so that I knew the young were still there, but for the rest of that day I did not see them make another trip to the box. The female often called from the branches, while the male sat on the wires, and for the first time, I heard him sing—a lovely, liquid warbling.

Both parents made a big fuss whenever there was a kestrel\* in the vicinity, so I concluded that it was time for the young to leave the nest, and that they were being left hungry until they did so. Shortly after noon on May 7, one young came out of the box but other duties kept me from watching it. In the early evening, I heard it calling from the oak trees across the road, and another baby bluebird was hopping about in the tree near the box. This one I watched closely, and it had a big time, picking at everything within reach. Not once did it flutter or exercise its wings. While it was there, a male house finch came to look at it, and the baby bird did not show fear, but when a roadrunner ran under the tree, and when a kestrel flew past about 70 yards away, the little bird "froze" without any coaching call from its parents.

The male came to it and fed it, and as he left, the little one hopped to a more open perch and flew after him. Ninety feet it went across a brisk breeze, wheeled to the lee side of an oak tree across the road and came upwind to a perfect landing. For a first flight, this seemed

like an astounding performance, especially since there had been little chance to build up wing muscles by exercise while in the crowded box. The rest of the brood left the following morning, and the parents led them away so that for two days I did not see any of them.

With the western bluebirds gone from their old nest-box, the ash-throated flycatchers shifted their attention to it, although they had started building in a flicker box on my lath house. I cleaned out the box in which the bluebirds had nested, and found the nest was a compacted mass of twigs and grass with no circular arrangement of the material, no lining, and very little depression in the middle. On May 11, the bluebirds returned and drove the flycatchers away from the box, but after the female bluebird had gone to the birdbath and bathed, they left again. On the following day, the flycatchers started building. By May 16, this female was spending much time on the nest, and her mate drove away the western bluebirds when they returned. Five young bluebirds came along with their parents on this trip.

On May 18, the former bluebird tenants again returned, but the ash-throats were away at the time. They went into the box, but quickly came out again. Then the male went in by himself and stayed for almost a minute. When he came out, he flew up onto the telephone cable and wiped his beak. Then both flew away.

Puzzled by the male western bluebird's actions, I watched the flycatchers when they returned, but they seemed to act in their usual erratic fashion. However, the female did bring in much more nesting material at this time, but she habitually did bring in more material all through the brooding period. Just after sun-up on May 19, the western bluebirds returned, and a desperate battle took place for possession of the box. The birds seemed to be quite evenly matched, and they fought for some time with neither side victorious. Finally both flycatchers took after the male bluebird, forced him to the ground and pecked him until he squealed, wriggled loose, and fled. Then they took after the female and routed her in short order. This was the last time

the western bluebirds tried to re-take the box, and I saw them only at intervals throughout the rest of the summer.

The ash-throats continued at the box and by June 10, were feeding young. At first, they brought small food items, but soon they fed grasshoppers to the youngsters, almost exclusively. They got these by perching low on weeds and fences and then picking up from the ground insects that they saw moving. On July 2, three of the young left the nest, and a fourth one on the following morning. One young I watched made a 90-foot flight to the oak tree across the road, just as I had seen the young western bluebird do.

Remembering the strange actions of the male western bluebird at the box when he went in it during the absence of the flycatchers, I counted the number of days during the nesting period of the flycatchers and compared it with the record of the previous season. I found that in the present season eight days longer elapsed between the time nest-building started and the time when the young left the nest, than in the previous season. Circumstantial evidence suggested that the male bluebird had destroyed some eggs of his rivals, so I examined the nest to see if there was any evidence.

This flycatcher nest, like those of the two previous years, was made largely of hair, apparently taken from the remains of dead animals as it had quite a carrion odor to it. The lower part of the nest was of rabbit and ground squirrel hair; the upper part was of skunk hair. I could find no eggshells, but the central part of the nest was so badly soiled and decayed as to make their detection difficult. As neither parent had been seen to carry away fecal sacs until the last few days that the young were in the nest, this soiled condition was not surprising. Without further evidence, I cannot accuse the male bluebird of doing as the house wren is known to do—reduce competition for nesting cavities by destroying the eggs of rival species. Next year, I hope these two pairs of birds will again use one or both of the bird boxes I have set up for them so that I may continue my observations of their individual habits and interesting relations.

— THE END

\* The name "kestrel" is often applied to our American sparrow hawk. Kestrel is the common name for *Falco tinnunculus*, a small European falcon, which our American sparrow hawk resembles and is related to.—The Editor

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## Attracting Birds



## Canteen for Forest Dwellers

By Helen Hoover\*

SETTING up a feeding station for birds was high on the list of things to be done that my husband Ade and I prepared shortly before we moved from Chicago to the Minnesota-Canadian-border wilderness. However, considerations such as getting in food and wood took top priority when we faced the actuality of preparing for the northern winter, and an accident, which left us without a car, changed the whole picture.

The snow was down when we took stock of our feeding-station supplies, which could be augmented little before spring because all winter-bought goods had to travel three miles from our mailbox in Ade's pack-sack. We had only a small bench, suet mailed to us by our butcher, cracked corn bought for our laying hens, and some graham crackers, salvaged after falling into the woodbox. Not too hopefully, we spread our offerings on the bench under a white cedar tree.

Within minutes four whiskey jacks\*\* sailed in on gray wings to gobble suet and carry away crackers. A red squirrel scouted from a branch and scurried down

the trunk to scatter the birds and find everything delicious. A pair of blue jays, that examined the surroundings most carefully from high branches, came the next day to approve of the corn, and downy and hairy woodpeckers, peeked around tree trunks at the house, while awaiting their turn at the suet. Chickadees and nuthatches, feeding on weed seeds at the opposite side of the cabin, located the food a week later. Our wilderness canteen was going to be a riotous success, and the riot was not altogether figurative.

With the whiskey jacks, chickadees, and blue jays competing as individuals, the hubbub resembled that around a bargain table. Suddenly, a pileated woodpecker dropped onto the bench, which was instantly vacated by the smaller guests, with the exception of one nuthatch that hung on the edge, wings spread, beak open, hissing and swaying like the front half of a small, brave dragon. After the big red-crested visitor had sampled the suet and had flown away, the others reorganized their squabbling.

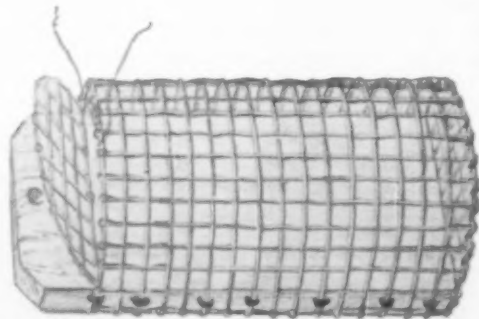
The chickadees gave way to the nuthatches, that dodged the downies, that flew from the whiskey jacks, that avoided

\* Many of our readers will remember some of Mrs. Hoover's previous articles in *Audubon Magazine*—"Wilderness Animal—The Fisher" (January-February 1959), "The Moose" (September-October 1958). Her account herein published is the first we have ever had of a feeding station in a northern

wilderness. Her list of species fed is truly astounding.—The Editor

\*\* Whiskey Jack, from an Indian word which may be spelled *wiskijon*, is the local name for the gray, or Canada, jay, used here to avoid confusion between these and the blue jays.

Sketch by Mr. Hoover of his suet cage on wooden platform, 4 x 10 inches, to which the cage is nailed or stapled. See discussion of, and reasons for its design, on page 85, opposite.



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the blue jays, that stood about even with the hairy woodpeckers. All the birds flew from the squirrels except one hairy, which hopped up behind any squirrel, not on guard, and rapped him forcefully in the rear. Since our canteen's clientele was not to be restricted, we would have to keep the peace by adjusting feeding methods to separate the guests.

Today, the bench still stands under the cedar tree, but the station covers an area some 30 x 15 feet outside our kitchen door. Corn and crackers are served on flat 8 x 12 inch wooden trays, with a low rim to minimize spillage. We place these six or seven feet high and they are popular with the red squirrels, which like to survey their surroundings in a lordly manner while eating, and with the blue jays that are constantly looking for danger. One of the trays has held as many as ten chipping sparrows, which argued about the crowded conditions but fed heartily nevertheless. A lower shelf by the door, sheltered by the eaves, pleases our flying squirrels, for which I nightly put out corn, scraps of fat, and graham crackers.

Small piles of cracked corn lie here and there—near the under-root home of the boreal red-backed voles, along the edge of the woodshed floor for chipmunks, at widely spaced intervals beside our paths so that red squirrels can feed with only admonitory chattering, and anywhere sheltered for the delicate deer mice and timid little jumpers, that feed here in the absence of weasels.

At first, to prevent the squirrels' carrying all the suet\* home, we nailed it to the bench in wire-mesh cages, but some squirrels used their teeth like pliers to spread the wires. When a fisher removed the nails from one of the cages and turned it neatly back to empty it, Ade devised a hemispherical container of half-inch wire mesh on a 4 x 10 inch wooden backing, which could be taken in at night. The cage is eight inches long, with mesh bottom and hinged mesh top, fastened by a twist of wire. It is hung over a nail on a post or tree trunk by a hole in the wooden top extension. Once a forgotten cage was removed during a winter night by a fisher. The next spring, Ade found it 200 feet away under a brush pile, its fastener carefully untwisted, and its contents neatly removed.

Gradually the birds and other animals have learned to continue feeding as we move about the yard, with the exception of the cautious blue jays and some of the transients which are with us too short a time to become accustomed to us.

\* Red squirrels will eat suet, although gray squirrels seldom if ever do. This seems to prove the more carnivorous appetite of the red squirrel.—The Editor

Handfeeding of wild things requires that the person be relaxed and confident and that he be able to sit or stand in one position, holding out the food, with the steadiness of a student of yoga. But when the birds and other animals have become accustomed to accepting food from an individual's fingers, reasonable movements do not frighten them.

The whiskey jacks were the first to come to our hands, with the black-capped chickadees a close second. The brown-capped chickadees were slower and seem to prefer having us toss bits of cracker on the ground for them. The blue jays keep a wary eye on the proceedings from high branches and will sometimes fly down for food which we toss within their sight.

Both red and flying squirrels hand-feed readily throughout the year, the former by day and the latter by night. They tend to be nervous at first and it is important that the food—in our case, the ever-welcome graham crackers—be held so that it extends beyond the



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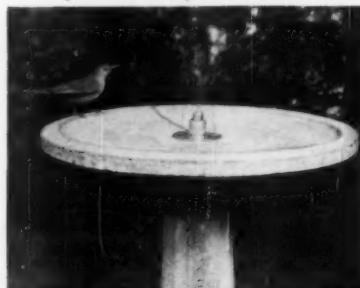
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fingers to prevent mistakes as to which is finger and which is food. The red squirrels, that attract our attention by running on the door screen, become very excited when several of them are begging at the same time. After all, it is natural for them to compete individually. It always alarms me to watch some friend trying to handfeed my red squirrels, moving the cracker about, making strange sounds, while the agitated squirrel leaps frantically at his hand. No one has been accidentally bitten, but I discourage the handfeeding of these animals by strangers.

Wintertime, when the responsibilities of rearing the young are over and food is hard to get, brings the largest group to our feeders. There is no cautious hesitation now. When we open the door to the shadowy dusk of a white morning, the motionless snow-world comes to life. Red squirrels scamper to beg for new piles of corn to replace those snow-covered, although they will dig up the buried feed if necessary. Woodpeckers hop up and down the tree trunks while Ade hangs the suet containers. The ever-hungry whiskey jacks glide from the treetops. Chickadees and nuthatches cling upsidedown and sidewise to the trees, until the woodpeckers leave the suet. Surely nothing could be more beautiful than the blue jays, swaying on snowy balsam boughs, preening their gorgeous plumage, as they keep sharp eyes on everything.

Many people do not feel kindly toward blue jays, but the large number of other birds that share this woods with them indicates that any nest-robbing is only one more natural control of numbers. Their alarm-giving is helpful in saving the lives of many creatures. One afternoon our jays set up a frantic screaming from branches near the door. I rushed out to find a downy woodpecker lying in the snow. As soon as I picked her up, the jays quieted and moved to the treetops. The downy was unhurt but had suffered some kind of shock. After a short rest in a dark box, a drink, and a bit of suet, she flew away. We do not know what had attacked her but we are sure that the blue jays saved her.

The weasels, which keep strictly to themselves during the warm months and make occasional inspection tours in late autumn, come in for their hand-outs after the snow is deep. Their arrival is announced by the angry rattling and squawking of the birds and squirrels. The weasels handfeed readily after a bit of training and new arrivals are brought to the door by those that have fed with us previously. They like red meat best, but will store suet against lean periods. Our standard for them is ground beef. The birds, after some time, learn to go on with their feeding

while I am feeding a weasel, although they warily watch the little carnivore on the doorstep. The weasels look with considerable interest at the birds but do not attack. I have even managed to feed a weasel at my feet with one hand and a whiskey jack with the other, held high above my head. The adjustment of these natural enemies seems to depend on me and my food-gifts as a buffer because, if I go inside, the birds seem to feel that the truce is over and go on with their efforts to drive the weasel away.

Hunger brings the fishers to us in winter, too. They are shy but friendly, not at all the vicious creatures they are commonly reputed to be. I was very cautious with them at first and, after having one nip through my boot, hesitated to attempt to handfeed them\*. However, after they learned to trust me, they behaved much like their smaller cousins, the weasels, gliding back and forth on the doorstep and taking bits of meat from my fingers with exquisite care. Last winter, a frosty old male that had lost a forepaw in a trap, visited us weekly. No amount of coaxing could persuade him that we were harmless, so we left meat scraps for him in a pan under a large carton, which prevented the flying squirrels from taking his dinner home. He lifted the box, cleaned the pan, and for reasons known only to himself, always turned it upsidedown before he left.

We usually have a deer or two, that come regularly from midwinter to early spring to feed on cedar branches which Ade has cut with a pruning hook and set upright in the snow of our clearing. Next year we may have a salt lick which will attract more whitetails. One doe came to our doorstep last winter to lick up the corn we had put on the shelf for the flying squirrels. I would hear the crunch of stealthy footsteps on the snow and turn to meet her gentle, dark eyes, gazing at me through the glass of the door.

Snowshoe hares come to nibble corn left over from the feeding of the other animals. They were very shy at first and it was weeks before I could open the door quietly and stand just inside to watch them feed without their hopping hastily away. As they grew used to us in summer and learned that carrot leaves are simply delicious, the adults became quite tame. Last spring, while Ade was pounding in posts for a fence to keep hares out of the garden, one of them sat casually in the path nibbling dandelion leaves, only a few feet from him.

Leftover bacon grease brings shrews—masked, pygmy, and short-tailed—and once some meat, which had been de-

\* See Mrs. Hoover's article, "Wilderness Animal—The Fisher," *Audubon Magazine*, January-February 1959.—The Editor

laid in shipment and arrived in doubtful condition, attracted a raven to the yard.

With the coming of spring, the mammals and birds retire to rear their young. After their late-March mating time, the red squirrels scatter to establish territories for the months ahead. The mothers-to-be continue to feed with us, and, though they chatter warnings to each other, they seem to know that there is food for all and do not fight for the territory which includes our feeding yard.

In April, the chipmunks, still fat from the corn we gave them to store the previous fall, patter out over the melting snow. The least chipmunks are so skittish that it is difficult to get them to come to the hand, but the eastern chipmunks are more trusting and will sit in one hand and stuff their cheek pouches with corn from the other.

Soon it is sparrow-time again and the slate-covered juncos stop over with us for a week or two. I have a century-old coffee grinder that is perfect for reducing coarse grain to small-bird size and we scatter the ground corn along our paths and around and under trees so that many birds may feed without having to maneuver for positions.

Summer is the time of young things, when whiskey jack and blue jay children flutter in the branches and drop down to feed imitating their parents'

voices and behavior. Baby chickadees and nuthatches accept suet from their mothers' beaks, and a young male downy, his scarlet headpatch a bit blurry, his vest still a soft gray, was introduced by his mother to our suet cages this summer.

In early June, the red squirrel mothers disappear for a day or two. They return for hasty feedings until their little ones are about two months old. This summer we have, so far, seven squirrel youngsters from three of the five mothers nesting somewhere near.

*Continued on page 96*

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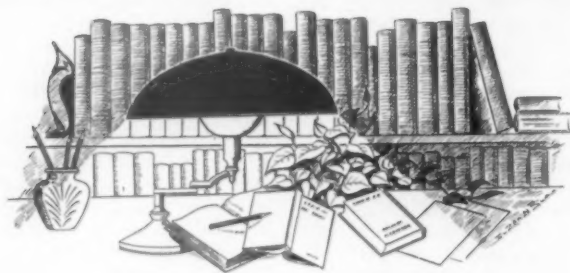
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## BOOK NOTES



### TECHNIQUES OF DRAWING AND PAINTING WILDLIFE

By Frederic Sweney, Reinhold Publishing Corporation, New York, 1959. 8 x 10 in., 144 pp. Illustrated. Indexed. \$10.00.

By Walter W. Ferguson

In his book, Frederic Sweney, an advertising artist and teacher, offers most of the essential information sought by the student of wildlife painting who has at least an elementary knowledge of drawing and painting. The book is not directed towards the complete novice, nor does it offer the professional wildlife artist any information that he should not have already acquired.

There are three sections, dealing with birds, fishes, and mammals, each of which is treated in terms of anatomy, behavior, perspective, the use of models, and the step-by-step account of how the author develops a painting. The descriptions of techniques, although limited to those used by Mr. Sweney, are very useful.

The minor omissions and inaccuracies, such as the inclusion of size-reduction and overlapping shapes (which are two aspects of linear perspective) under the heading of Aerial Perspective, and the neglect of change in color intensity as part of the same, do not detract from the really helpful and detailed suggestions that the book contains.

Most of all, it is very refreshing to see a book on how to draw animals which is not merely an accumulation of an artist's sketches and irrelevant descriptions, from which the reader is expected to learn by looking and copying, rather than by thinking and understanding.

Walter W. Ferguson is an artist and an illustrator of wildlife, formerly on the staff of the American Museum of Natural History.

### THE VEGETATION OF WISCONSIN

By John T. Curtis, University of Wisconsin Press, Madison, 1959. 9 x 6 in., 657 pp. Illustrated. Indexed. \$7.50.

By Nicholas L. Cuthbert

This book is the result of a comprehensive study of the entire vegetation of

Wisconsin. One must admire greatly the determination, knowledge, and foresight of the man who, with the acknowledged aid of many others, undertook such a tremendous study, guided it through the years, and brought it to completion in this volume.

Dr. Curtis is Professor of Botany at the University of Wisconsin and an authority on plant ecology. This important book is clearly a major contribution to plant ecology in general as well as to the information concerning the vegetation of Wisconsin. Further, many comparisons are made with vegetational aspects of other areas of the United States and Europe. Although written primarily for the serious student of plant ecology, it is also a great source of information for those interested in conservation, animal ecology, forestry, wildlife management, and so forth.

The book is based largely on published botanical and related papers (approximately 600 titles are listed in the bibliography) and on detailed studies of Wisconsin plant communities made by the Plant Ecology Laboratory of the University of Wisconsin throughout the decade following 1946. In this period, over the state, a total of 1,420 separate vegetational stands were studied. The undertaking was a prodigious one and involved great care in selection of suitable stands, statistical measurements of reliability, laboratory analyses of soil samples, and preparation of innumerable maps and tables. From these studies, the major and lesser plant communities of Wisconsin are described in detail through 347 pages. Some of these communities are southern forests, northern forests, and prairie (xeric, mesic, and lowland subdivisions of each), boreal forest, aquatic, weed, and others.

Additional chapters include rather extensive material on the history of knowledge about Wisconsin flora, on geology, climate, and soils. An extremely informative section is on post-glacial history, the interrelations of communities, and the effect of man on the vegetation.

There is much food for thought for the conservationist. For instance, when

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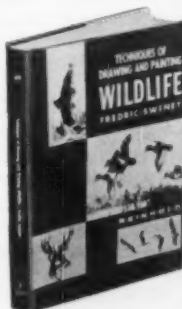
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### FREDRIC SWENEY

studied at the Cleveland Institute of Art where he was awarded the Frederick Augustus Kendall Scholarship.

For 24 years he did outstanding work for national advertisers, and now lives in Florida where he has been teaching Art for ten years at the Ringling School of Art in Sarasota. Among the many hunting and fishing scenes he has painted, he is particularly well known for his wildlife calendars done for Brown & Bigelow.



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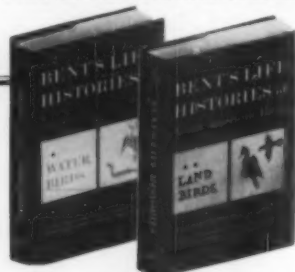
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white men came to the area, it was by no means a land untouched by the hand of man. With fire, the Indians had "changed a very large portion of the entire vegetational complex of Wisconsin" and no less than ten different plant communities including the prairies all owe their origin or maintenance to the repeated presence of fire. Great changes took place in the vegetation after early white man's presence led to a stop of these yearly fires. Further, the author points out that "Fires have been burning in northern Wisconsin for 10,000 years . . ." and that "The forests of the region are adapted to this situation and the normal complements of species as we know them can exist only if it is continued." He advocates controlled fire, and burning when and where desired. "Such use should be actively encouraged and promoted, rather than hindered by outmoded taboos, to the end that the health and well-being of our forests and other non-agricultural lands can be raised to their optimum levels."

Dr. Cuthbert is Professor of Biology, Central Michigan College, Mount Pleasant, Michigan. He is also Director, The Audubon Camp of Wisconsin, Sarona, Wisconsin.

## **CACHE LAKE COUNTRY**

By John J. Rowlands, W. W. Norton Co., Inc., New York, 1959. 8 1/2 x 5 1/2 in., 272 pp. Illustrated by Henry B. Kane. \$3.95.

By Leonard Lee Rue, III

Many of us often dream of living in a log cabin on some secluded lake in the best of Thoreau's traditions. Few of us will ever be offered the opportunity of realization, but we are still free to dream. Adding fuel to this desire is a book superbly done by Mr. Rowlands who is fortunate enough, and realizes it, to live that type of life in holding down his job as a cruiser for a large timber company.

The setting of the book is in the "North Woods." Done in the style of a diary, it takes the readers through the year month by month by actually sharing the author's life and adventures as well as the plain day to day living chores dictated by the demands of that particular season. Nature enthusiasts will be pleased to learn of the many interesting sidelights brought out about the various creatures with which the author comes in daily contact. People who like to tinker with their hands will find many interesting and worth while projects to make and experiment with. The greatest benefits, however, will be derived by those who actually spend time in the out-of-doors. This book will round off many sharp corners and shorten your path on the long road to the knowledge needed to make yourself "at home" in the woods.

Would you like a good recipe for

"bean hole" beans, instructions for weaving snowshoe webbing, pointers on finding your way with map and compass, directions for making woodland moccasins? These and many other informative descriptions are packed into every page making it virtually an encyclopedia of woodcraft. Embellishing the text are the fascinating illustrations by Mr. Kane that are found on every page, either marginal or full spread.

In the words of Mr. Rowland, "There is a Cache Lake for everyone, but it won't be found beside a four-lane highway nor will there be a clear trail to lead to it. If it is worth finding, it will be far from the sights and sounds of civilization, quiet and clear, and without pretension. Unless you know what to look for you may pass it by."

This book may well be the map you have been searching for.

Leonard Lee Rue, III who is a Camp Ranger for Pahaquarra Scout Camp, at Columbia, New Jersey, is also a well-known natural history photographer, writer, and lecturer. He has spent the last 11 summers as guide and trail director of the Adventure Unlimited wilderness canoe trips in Canada.

## **SOIL, GRASS AND CANCER**

By André Voisin, Philosophical Library, New York, 1959. 5 1/2 x 9 in., 302 pp. Drawings from sketches by Martha-Rosine Voisin. Indexed. \$15.00.

By Beatrice Trum Hunter

The subtitle of the book summarizes the work: "health of animals and men is linked to the mineral balance of the soil." The author is concerned with the influence of the soil on the metabolism of living cells. He attempts to demonstrate how the mineral elements of the soil form the cells which compose the plant life grown on the soil. The plant life, symbolized by grass, represents food. The quality of the food affects both animal and human life which it sustains. Proper balance of the soil results in health-giving food; soil deficient in certain minerals modifies or disturbs the metabolism of the cells, resulting in disease.

Mr. Voisin describes the results from deficiencies in specific minerals, especially the trace elements such as copper, sulfur, zinc, calcium, magnesium, etc. He suggests that the control and prevention of diseases, such as cancer, lies in a better understanding of nutrition. This begins with a proper study of the soil, its treatment, and cultivation. As an example of this relationship, he discusses properdin, a defensive enzyme possessed by animals and humans, discovered as recently as 1955. Apparently, properdin gives a non-specific power of resistance against attacks by infectious agents. However, without the presence of magnesium ions, properdin is completely inactive. In experimentation, low magnesium content of the blood favors can-

cer. Any disturbance of the magnesium metabolism reduces the protection and defense against cancerous cells. Although cancer may have many causes, the primary action is the irreversible disturbance of cell respiration. The normal respiratory mechanism has broken down beyond repair. The cell, in order to survive, will try to create a different method of respiration. The cell adopts a cancerous way of life in order to survive.

The author believes that good nutrition affords powerful protection against carcinogenic effects. He suggests that legislation is essential to guarantee that foodstuffs be grown to contain mineral balances and retain their natural protective anti-carcinogenic properties.

André Voisin is a member of the Academy of Agriculture in France, as well as Head of the National School for Veterinarians at Alfort, Paris. He writes with the technical knowledge of the trained scientist, but also with the practical observations of the farmer. The book is intelligible to most of us with no special background, as well as of interest to the specialists of soil, animal, and human nutrition and health, and students of ecology. Mr. Voisin, while watching his own cows graze, evolved his theme. "The soil must be kept in good health if the animal is to remain in good

health. The same is true of Man. Soil science is the foundation of protective medicine, the medicine of tomorrow."

Mrs. Hunter is Director, New Hampshire Chapter, Natural Food Associates.

## BOOKS RECENTLY RECEIVED

### NATURAL RESOURCES

*Edited by Martin R. Huberty and Warren L. Flock, McGraw-Hill, New York, 1959. 9 1/4 x 6 in., 556 pp. Illustrated. Indexed. \$11.00.*

Twenty essays by experts in various fields, covering both renewable and non-renewable natural resources, and including such topics as air pollution, fresh water from saline sources, and nuclear energy, as well as a discussion of ecology, wildlife, and wilderness.

### RECREATIONAL USE OF WILD LANDS

*By C. Frank Brockman, McGraw-Hill, New York, 1959. 9 1/4 x 6 in., 346 pp. Illustrated. Indexed. \$8.50.*

A text and reference book in the American Forestry Series, and the first detailed compilation of this increasingly controversial subject.

*Turn to next page*



## Dictionary of the American Indian

by John L. Stoutenburgh, Jr.

*formerly of the American Museum of Natural History*

A comprehensive source book for the individual or student who wants a clear unbiased picture of the American Indian. Based on years of research, travel and interviewing, the author has clarified many terms which have often been used incorrectly and presents facts without prejudice.

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**THE REDWOODS**—Famous Trees Library. Expanded edn., 1959. 48 photos. \$4.00

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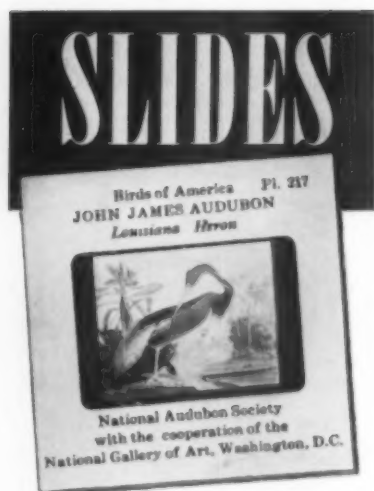
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## THE OCEAN OF AIR

By David I. Blumenstock, Rutgers University Press, New Brunswick, N. J., 1959. 9½ x 6¼ in., 457 pp. \$6.75.

A comprehensive volume on a rapidly expanding subject, about a third of which is devoted to the relation of man to this vast sector of his environment.

## McKAY'S GUIDE TO ALASKA

By Robert G. Hart, David McKay, New York, 1959. 8¼ x 5½ in., 330 pp. Indexed. \$5.00.

Full of fascinating information, even for a casual reader. There is a chapter on hunting, fishing, and trapping, which suitably begins, "Alaska's wildlife resources are of vital importance to its economy and to the welfare of its residents," and goes on to urge the cooperation of hunters with active conservation groups in preserving those resources.

## NATURE STORIES FROM THE VIENNA WOODS

By Lilli Koenig, Crowell, New York, 1959. 9¼ x 6 in., 159 pp. Illustrated. \$3.50.

Affectionately recorded observations on the behavior of hand-reared pheasants, bee-eaters, dormice, and other creatures, by one of a team who operates an animal research station near Vienna. There is a foreword by the noted ethologist Konrad Lorenz.

## LIVING INSECTS OF THE WORLD

By Alexander B. Klots and Elsie B. Klots, Doubleday, Garden City, New York, 1959. 11¼ x 8½ in., 304 pp. Illustrated. Indexed. \$9.95.

Insects in general—not just butterflies and moths—have never been shown in such jewel-like splendor as in the photographs here. The text is non-technical but a good deal more extensive than in the usual illustrated book on the subject.

## JUNIOR BOOKS

### THE STORY OF SPIDERS (10 & up)

By Dorothy Shuttlesworth, Garden City Books, Garden City, N. Y., 1959. 8½ x 11½ in., 57 pp. Illustrated by Su Zan Nogucho Swain. Indexed. \$2.95.

By Mrs. Allan D. Cruickshank

This charming book fills a real need in nature books for children. It is written simply yet it is filled with a vast store of authentic information about spiders ranging from mythology and the use of spiders by primitive peoples to the place of spiders in modern science and industry. The foremost part of the book is devoted to a discussion of the

fascinating lives and habits of spiders. From creatures of mystery usually regarded with fear and as something to kill underfoot, the reader is led to see them as interesting animals deserving of study and protection. Though this is a children's book, adults will join them in reading it with pleasure. In so doing, their interest will be aroused in this group of animals so little known to the layman.

Dorothy Shuttlesworth not only makes the reader see spiders as the strangely fascinating creatures they are, but she has recognized the innate longing of children to stretch their minds and vocabularies with unknown words. Her use of scientific names for the various groups of spiders does much to make this book of permanent value, a book that will be used and referred to long after childhood has been left behind.

Recently a national magazine printed a scathing article on children's books; of classics watered down until the barest semblance of the original remained, of pictures illustrating the text so completely that reading was unnecessary, and so-called informative books sacrificing truth for a space-fiction approach. In this volume the writer of that article could take heart. Material is soundly and truthfully presented. The spiders are offered as living creatures which share the earth with us, yet we know them so little that gaining knowledge of their habits opens the door to a new world.

The text and illustrations enhance each other, each filling a specific need. Su Zan Swain's illustrations are bold, dramatic, and beautiful, yet so realistic that the species may easily be identified from the pictures. Also illustrated are some of the faces of spiders, different types of webs and homes, and a "tree" showing the place of spiders in the animal kingdom.

Mrs. Cruickshank is author of "Bird Islands Down East," "Flight Into Sunshine," "Wonders of the Bird World," and other books. She is Bird Chairman, Federated Garden Clubs of Florida, and is a member of the Society of Woman Geographers.

### ALL ABOUT THE ICE AGE (10 & up)

By Patricia Lauber, Random House, New York, 1959. 9½ x 7 in., 151 pp. Illustrated. Indexed. \$1.95.

By Mary Jane Dockeray

What caused the Ice Age? Will there be another? Where and how do we search for the answers? Since the time, over 100 years ago, when Louis Agassiz made his startling discoveries about glaciers, scientists have delved ever deeper into the mysteries of the Ice Age that once enveloped a quarter of the earth.

Patricia Lauber, editor of a science magazine for young people, has combined theories of the past with the most

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recent discoveries to weave an interesting and easily understood account of glaciers of the past, present, and possible future. She explains how modern research methods have caused some pieces of the puzzle to fall into place and how scientists in many fields have added their findings to make the story more complete.

Later elementary and junior high youngsters with a special interest in geology and the natural sciences should find this book not only interesting, but challenging, as it poses questions still unanswered. There is enough adventure to lure the reader on and enough fact and conjecture to appeal to the budding scientist.

Mary Jane Dockeray is Nature Lecturer and Geologist for the Grand Rapids Public Museum, Grand Rapids, Michigan. She is also instructor in Nature Activities during the summer at the Audubon Camp of Maine.

## TWO LITTLE SAVAGES (10-16)

By Ernest Thompson Seton, Doubleday & Company, Inc., New York, 1959. 9½ x 6 in., 410 pp. Illustrated. Indexed. \$3.95.

By Roland C. Clement

The re-issue of this classic is a good omen. Many of us in the Audubon movement were "Seton Indians," having learned much of our woods lore and our devotion to nature and conservation from this and other Seton books. And we know now that this tale of a boy's tribulations in getting to know the outdoors was in large part autobiographical.

As the years have passed, and more people have turned to the outdoors for recreation, I have been sorry that many of our youth leaders failed to follow Seton—plainsman, artist-naturalist, and the first chief scout—but have instead emphasized the axe and various transplanted city sports in our youth camping.

Today, the sheer weight of human numbers, of "boy days at camp" has given some campsites the wasted appearance of a range eaten out by deer; it makes the old woodcraft, based on the hatchet, with its "pioneer bridges" and other wood-consuming projects, unbearable.

Seton's ideal was the "go light" principle of the Indian scout—to travel without leaving sign, to fit into the natural community. Wildlife detective sports, or the insights of the forester, can supplant the crude lumberjack activities that passed as woodcraft among my generation of boys. Seton pointed the way and the modern wildlife ecology we now teach at Audubon Camps can furnish adequate challenges for young outdoorsmen.

Mr. Clement is Membership Secretary of the National Audubon Society in its New York office.

# GOOD NEWS!!!



Plans have just been completed for conducting a *NEW AUDUBON WILDLIFE TOUR*, basing at the Naples Hotel, Naples, Florida, and journeying from there into beautiful *CORKSCREW SWAMP SANCTUARY* and adjacent territory. These are one-day trips by station wagon, running five days weekly (Monday—Tuesday—Wednesday—Friday—Saturday) until May. They are led by Alexander Sprunt, Jr., and the fee is \$15 per person.

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## Your CHILDREN



Photograph of a child at Audubon Center,  
Connecticut, taken by Charles E. Mohr.

By Shirley Miller

WE wonder if the son of Lord Chesterfield enjoyed his father's letters as much as we do our morning mail. Come to Audubon House some Monday morning, when a lively batch of this pours over our desk, and you'll see what we mean. Even the second-class mail brings some choice items—such as the time we received a handsome brochure, offering us a 25 per cent discount on embalmed cats. Often this mail reflects an adult's earnest, if somewhat frantic, desire to be of service to a children's group, as evidenced by a note from a Den Mother saying, "I have ten Cub Scouts. Please send information about what to do next."

But it is the mail from the boys and girls, themselves, that is our particular delight. Sometimes their terminology is a bit hazy (we are thinking of the little girl who wrote for information about a "red-soldered hawk"; also the boy who asked, "Are there any mammals in Ohio that are threatened with extension?" But their desire for knowledge and their enthusiasm in acquiring it is unbounded.

For example, there was the boy who wrote, "I am studying about birds in school. I like them very much. Please send me one picture of every bird in the world. P.S. Please send one of each of these to my brother, too."

Then there was the SOS from an eighth grade girl, as follows: "This year I am taking biology and I have to write a report on whales. Could you send me

a pamphlet about whales? Also do you have some specimens of whales that you can send me with the pamphlet? They don't need to be big whales. When I am through with them I will mail them back to you. I have to have them by next Thursday."

Our young correspondents cover practically every phase of natural science, too. One ten-year old girl sent us a copy of an essay she had written for her Audubon Junior Club scrapbook, as follows:

"Atronomy. I started atronomy when I was in the third grade. I was eight years old and my teacher got the whole class interested in atronomy. I love atronomy. I study it whenever I can. Atronomy is my ambition. With my three-inch telescope I have discovered Venus, Mars, the Pleades and the Moon and its craters. When I grow up I want to go to the moon. I really do. Not alone, of course. It would probably be with a man."

And it is the coming generation that can point up a definition with vigor. Via the Executive Secretary of the New Hampshire Audubon Society, a nine-year old boy has provided us with one of the best definitions of conservation that we have seen. He says that "conservation is what we eat and what we wear and where we live, and if we don't, we won't."

And now, if you'll pardon us, we'll get back to our morning mail!

— THE END

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Continued on page 96

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## ATTRACTING BIRDS—Continued from page 87

They peer at us with intense curiosity and come by little hops and jumps to examine us closer. I don't know of any better cure for human doldrums than to sit quietly, holding out a piece of graham cracker to a very new, very fresh-looking, very well-groomed baby squirrel, until he at last stretches out to take his first bit of food from your hand.

All summer, crows stalk pompously through the grass looking for scattered corn and gulls circle down when Ade visits the shore, to make their perfect landings on the water and paddle in to snap up bits of fish and bread.

Suddenly the aspen leaves are gold. The red squirrels are again quarreling over territories, which they will guard jealously until winter hardship brings them all in to our feeding station. The chipmunks are so amply supplied that they retire to their winter dreaming at the first real cold snap. The migrants leave for warmer climates. In the space where the garden vegetables have long been gone, there is a fresh growth of wild plants, and ruffed grouse and spruce hens come to pick the unexpected treat in the midst of the surrounding dried vegetation. As our winter birds begin to gather, we check to be sure that we have enough food for all visitors during the coming months.

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